Experience and Reality

The Idea of Process and the Case for Psychical Realism

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Ph.D

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1996

dedication

Placed in the open hands of believers,
my mother and father.

abstract

Process thought offers vital developments in speculative metaphysics, yet endures unjust neglect due to the technical intricacies of Alfred North Whitehead's contribution and to the theological component of Charles Hartshorne's writings. Whitehead's keen mathematical and scientific orientations preceded his mature metaphysical outlook, and the resultant metaphysical system is burdened by overwhelming complexity. This discourages many from ever investigating his expansive speculative endeavours while encouraging exclusive discourse among the few Whiteheadian insiders. Hartshorne distinguishes process philosophy and theology from unrelated classical doctrines, yet with theism as such in the foreground of his work, many dismiss it as outmoded or irrelevant to contemporary concerns; while others, finding reformulated theistic principles untenable, reject process thinking in its entirety. The present study extends its appeal by establishing a case for psychical realism - the view that reality is made up of experiential events - and by showing that to replace Whitehead's complexity and Hartshorne's deity with psychical realism in the foreground of process philosophy allows such events to play a crucial part in a more universally acceptable process vision.

The work is divided into two parts consisting of two chapters each, bordered by an introduction defending metaphysical endeavours at large and an epilogue of process pointers for speculating large. The first chapter on becoming and being considers the problem of process, the inadequacy of historically influential substantive accounts, and the potential of an event ontology to ground being in a complementary becoming. The second chapter relates being and becoming to the likewise complementary pairs of first empirical and rational and second objective and subjective. The warranted stress on becoming over being is repeated - the rational emphasised over the empirical, the subjective over the objective - to counteract an analogous bias to the contrary. Psychical subjectivity is then less enigmatic philosophically and more capable of grounding the objective physical world scientifically, once given the proper metaphysical backing. The third chapter defines and distinguishes psychical realism from related doctrines, and defends it independently of its place in process philosophy. Intuition and perception indicate a related synthesis of realism and idealism, and the analogic and genetic arguments are examined and objections addressed. The fourth chapter explicates process metaphysics by situating it historically, by highlighting its essential creativity, organicity, and temporality, and by marking the psychical realist component they each imply. And, in the epilogue, psychical realism encounters the final process cosmological frontiers.

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preface

At the heart of the wonder and written work that constitutes a first considerable undertaking in philosophy are a great many influences. Much that is here has emerged little by little from formal studies at first, but then more and more from reflection and conversation about my own private thoughts and feelings on the nature of all things great and small. I hope that something of the latter informed the former when the time arrived for wonder to turn to writing. To lose sight of the problems of people and the problems of the world on occasion, to take up concerns only a philosopher would choose to invent, is somewhat inevitable in doing metaphysics. But I have also chosen to follow my supervisors in trying to avoid excessive commentary on the countless controversies that tend to pepper journal publications, many impinging at most at the margin of the bigger issues and unlikely to be of lasting interest. Overly technical and professional jargon may plague recent philosophy, but to leave it wholly to one side while retaining what is vital is not so simple, and I have not always succeeded. But if I come across as less than current in my considerations, it is partly due to an attempt at a frank unfolding of my own opinions in light of the many great ideas already out there, while trying to address the basic objections readily raised against any humble efforts at thinking things through. Such is philosophical endeavour at its most engaging as I see it.

A few remarks on style are in order. For the most part I work around gender biases inherent in English by employing first and third person plural and impersonal pronouns whenever possible, but I avoid the awkward 'he and she' or the affected 'she' or any other curious new constructions to that effect. The concern is heartfelt and the effort earnest, but *one* wonders if *we* accordingly take adversaries along for a ride in calling *them* one of *us* on occasion. At any rate, employing gender correctives when context makes clear the irrelevance of a hypothetical individual's sex introduces a certain emphasis (perhaps distorts a certain meaning) and is itself far from being gender neutral. I too await the imminent arrival of lasting solutions here. I also relinquish speaking in the first person at the close of the prologue, the better to abate my own meddlesome presence, and I open each chapter with an epigram out of Whitehead, the better to highlight the many redolent turns plentiful in his prose that are all too often taken as just more cryptic intricacy by the careless critic. Finally, the computer made it easy enough to employ something of a novel format for reference and discussion notes. Whether interested in mere browsing or full scrutiny, the reader has all the relevant information here on each page, but without intrusions into the flow of text, nor book abbreviations and publication dates to retain, nor pages to flip in hunting things down.

An undertaking of such scope carries with it a number of professional and personal debts. There is the gratitude owed to those eminent thinkers - Plato and his 'footnotes' in Whitehead foremost among them - whose work and influence have so clearly inspired and directed my own. Hardly ever managing to 'stand on their shoulders' I nonetheless have felt the 'shock of a great philosopher' now and again. There are also the many thanks owed to the enthusiastic if faceless philosophers from near and far increasingly coming across on the internet, in correspondence that goes over and then beyond the work of great thinkers. More gratitude by far is due to those who supervised my work, and in so doing became both my mentors and my good friends. 'Supervisors' is modest indeed since without their support nothing at all like this essay would exist. A certain chant-like quality to Stephen Priest's incessantly expressed conviction that 'philosophy is the solving of philosophical problems, philosophy is the solving of philosophical problems' kept me going early on when no solutions were forthcoming. Either he taught me not to mind dismal failure in learning the philosophy basics or he showed me something like honest means for denying it. I am still not sure which, but am forever grateful. For the kind teachings and generous effort of Timothy Sprigge, a true and accomplished philosopher in his own right, I am deeply appreciative and forever in debt. By deed more than by word he revealed which philosophical problems were worth the work, and by word alone made it plain that 'the best' was not to be the enemy of 'the not bad' in going about solving them. I count it my great good fortune to have spent so many evenings deep in discussion before his fireplace and his cats and his clear example. Any pretensions to insightful thinking on my own part in what follows ought always to be measured against the often unspoken but obvious debts owed to all these philosopher friends, both past and present. I am thankful as well for the blend of professional and personal assistance from my one-time readers and lifelong friends, Ariel Meirav and Pete Campbell, and for Sarah Gavron's ample support early on and Maya Gratier's kind-hearted help in seeing the thing through. Finally, I owe a debt of gratitude to my mother and father who, though so far afield, seemed never to lose sight of what I was doing nor that parental vision of success that I could not always see.

Edinburgh,
3 July 1996

Prologue

Metaphysics: A User's Manual

"There remains the final reflection, how shallow, puny, and imperfect are efforts to sound the depths in the nature of things. In philosophical discussion, the merest hint of dogmatic certainty as to finality of statement is an exhibition of folly."

The earliest known musings as to the way things are strike me as sound ones: that reality is made up entirely of experiencing entities of some sort and that there are gods of all sorts. Much can be said by way of vindicating the former idea and enough said of the latter at least to warrant taking it seriously. Our ancestors at the dawn of recorded history had good luck or bad in sorting through their metaphysical opinions, and there was certainly little more than guesswork and good luck to go on. Intuitions were surely at a premium, as neither systematic reasoning nor scientific investigation amounted to much, and the relation of each to speculative philosophy was far from clear. For Plato there was nothing terribly unsystematic about writing the *Republic*, on the one hand, and contending that everything we do wrong was the fault of our parents on the other; and Aristotle was not biologist enough to look into the mouths of women before claiming they had less teeth than men. Yet speculate they did, in brave if unbridled attempts to grasp the essence of reality and thereby to gain a good bit of wisdom. Such has been the philosopher's calling throughout history, and metaphysical pondering the outcome of those interests. The philosophers of antiquity were either dead wrong as to the nature of reality and its underpinnings, and all of us since (at least those interested) have had to ignore such notions and start from scratch, or they got it basically right to begin with and we, the interested, do well to spend our efforts sharpening up their good guesses. I submit that the latter is the more sensible view. But the spirit of the times is not one for meandering in ancient ruminations, and the critic sallies forth with the standard ridicule for any such irregular metaphysical reasoning. On the face of it then, in a dimly lit speculative present, the work to come explores the means to vindicate the admittedly far-fetched. Yet I shall argue that there are novel ways to consider these early musings, ways not nearly as odd as

all that, and ways that reflect and clarify the most expansive metaphysical system erected in our time.

There are fine and fruitful ways in which to agree or disagree with a metaphysical line; it is another matter entirely to simply ignore such thinking. In philosophy neglect is the worst of all possible fates and we seem in our time not to bother much with the metaphysician. I once overheard an art teacher, and rather distinguished painter, telling a student that if he could choose to live in any age at any place as an artist he would choose to live in Chicago right now. Being a native Chicagoan interested in art I was eager to challenge what seemed a ludicrous idea, but his reasoning baffled me. "In Chicago," he said, "everything is ugly and nobody likes art. No circumstances could be more inspirational for the pursuit of beauty." Perhaps metaphysicians in the West presently endure similar circumstances, for the major philosophical movements of the century - Pragmatism, Logical Positivism, Linguistic Analysis, Existentialism, Phenomenology, Marxism, Structuralism and Deconstruction - are all in the main against metaphysics. What is worse, venture out of academic circles, and philosophy in general (if given a passing thought) comes across as, "therapy for those afflicted with a rather refined kind of intellectual disorder in their control over their native tongues," as my supervisor's apt depiction has it, and metaphysics in particular when defended at all, "must be as being a kind of poetry,"[1] perhaps aesthetically and emotionally appealing, but far from having to do with truth. Has it really come to this: philosophy coming to an end, metaphysics becoming impossible? In the aftermath of such movements these begin to seem something like rhetorical questions.

I rather think, along with that supervisor, that the possibility of metaphysics and the fulfilment of philosophy ought to be made plain more in the showing and less in the telling, and whether metaphysics is *worthwhile* a better question accordingly, with answers in fact the hostage to experiential fortune. It is well to wonder with Wittgenstein what the use of philosophy is if it leads to, "talk with some plausibility about some abstruse questions of logic, etc., and if it does not improve your thinking about the important questions of everyday life."[2] Granted, some experience has aesthetic and emotional appeal, some is intellectually therapeutic, but metaphysical experience is profoundly involved in

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[1] T.L.S. Sprigge, "The Importance of Subjectivity." in *Inquiry*, 25, 1982 pp.144.
[2] L. Wittgenstein, In a letter to N. Malcolm quoted in Malcolm's, *Ludwig Wittgenstein: A Memoir*. London: Oxford Univ. Press, 1958, p.39.

revealing the reasoning that makes it just that way. Deep down we all believe in certain metaphysical truths, notwithstanding the movements that mark the contemporary spirit, for we all necessarily think and feel and act in terms of these deep beliefs regardless of any conscious, explicit opinions to the contrary. Whether we think ourselves free or fated, we deliberate for all big decisions; whether we believe in both bodies and minds, we feel upon awaking from dreams that the mind has been places the body has not; whether we regard others as important (or indeed others as even 'out there' at all) we delight in their pleasure and wince at their pain. Integrity is at stake when the concepts and categories, the vision and symbols, of conscious thought are inadequate to these deep, preconscious beliefs. For being flagrantly anti-metaphysical often opens one up to affirming self-contradictory notions that could never be altogether meant nor fully lived. Perhaps the half-lived opinions of the nihilist, the atheist, the absolutist about determinism, about relativism, about being selfish - these ideas, like the outright denial of metaphysics, may in the end be inconsistent as so only *insincerely* held, but in the meantime they may nonetheless be quite destructive, and experience accordingly quite confused and disagreeable. The metaphysician begins then by recognising that we cannot confine such thoughts to their scant status as playthings for philosophers, for ultimately the motivation for even the most abstract speculation is deeply personal, and conveys a passion to express a faith by which the philosopher may live. Ideas are not just toys, and one use for metaphysics is to help develop a coherent account for what lies at the heart of what actually happens to us in everyday living.

In the opening pages of *Process and Reality*, Alfred North Whitehead's *magnum opus* in metaphysics, it is announced that the work is best understood as repudiating a number of prevalent habits of thought influential in philosophy, and at the top of the list is the distrust in speculative philosophy.[3] Many consider metaphysics not only superfluous to scientific endeavour, but also utterly incapable of the kind of progress science enjoys. Simply put, there is neither need nor reward for such speculation. But even within each of the sciences, and more so between them, when the current crop of results comes in, puzzling new problems arise. The scientific stance might as well follow the fashion of Columbus' map-maker by placing 'terrors' over all its unknowns, should science

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[3] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.xiii.

not act at all on its (perhaps unacknowledged) speculative bent. For it is metaphysical thinking that makes sense of the menagerie of scientific facts, and the consequent comprehensive viewpoints are then used in the march toward further scientific discovery. This march may begin in particular hypotheses and new research proposals, but soon precedes beyond the specific sciences to studies all the more profound: to that of first causes, of being as such, of the transcendental conditions of experience, of the basis of reason and knowledge, of the meaning of freedom and the direction of destiny, of the systematic structure of the cosmos, and of the nature of the sacred and of the divine. Thus speculative thought comes prior to and then follows upon scientific enterprise. And though no ranking of what follows upon science is intended, I am inclined to feel that in the end the metaphysics that informs science cannot help but reflect the indispensable question that goes beyond the details, the habits, the laws of reality and on to how that structure ensures reality's ultimate meaning. We may note a shift in metaphysical methods from historical to natural theology, from natural theology to evolutionary cosmology, we may profess an appraisal of the question that discounts faith in any of its answers, but the human hope and need for sounding the depths of the mystery of existence persist all the same. Small wonder that once a metaphysician as great as Mr. Whitehead does away with manifold incidental details, 'the best rendering of integral experience' is often found in 'this wealth of expression of ultimate feeling' delivered in 'the utterances of religious aspiration'.[4]

The metaphysician (in us all) is therefore out to articulate a set of ideas that render the essence of reality and our place within that reality intelligible. It is not the making of a framework out to compete with common knowledge and scientific understanding, but rather to supplement and encompass them in an overarching harmonious outlook. And it is manifest that metaphysical progress has been made, but not the sort of progress that measures piecemeal scientific advances. The questions loom large, declare deep difficulties, and any answers must fit into or reform a good many others due to the systematic character of the speculations. But blind alleys continue to be sealed off, crackpot theories thrown out, the problems sharpened and the theories made more subtle and sophisticated. It is ludicrous to suppose that the metaphysician, unlike the scientist, is involved in a vain enterprise because all the possibilities have been

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[4] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.208.

adequately explored, those actualised have been utterly used up, and mostly by Greek thinkers in antiquity at that. If speculative philosophy is scorned as useless nowadays, it is the fault of those ignorant of its uses and its triumphs who choose not to speculate. For speculations have been and continue to be made indeed, and anti-speculative thinkers ought to think again about the contributions of a Peirce or a James or a Whitehead to current philosophical discussion. After all, the history of philosophy, Charles Hartshorne reminds us, provides something more than Grandpa Parmenides, Father Aristotle, Honest Old Uncle Kant, and Bad Brother Derrida.[5]

I consider Whitehead on the mark in suggesting that it is not so much the cogency of anti-metaphysical arguments, but the 'thinness of so much modern metaphysics' that has led to the demise of the discipline in our time. Gone are the days of the armchair metaphysician who knew nothing of the specific fields of study under categorical scrutiny. But in an era when information is described as 'exploding' few other than Whitehead can lay claim to a grasp of the material relevant to the task. Since that material has continued to grow exponentially, we do well to follow the lead of a qualified and comprehensive philosopher of Whitehead's calibre, and to see that following his lead at this point in time means using his process philosophy to take further metaphysical steps.

For Whitehead's own metaphysics is something of a solid gold shovel with a rope handle. It has not been taken up and used, but alas for all the wrong reasons. Keen mathematical and scientific orientations preceded Whitehead's mature metaphysical outlook, and so his system is burdened by a style marked with demanding technical intricacies. This has discouraged many from ever investigating one of the great speculative endeavours of our time while encouraging exclusive discourse among the few Whiteheadian insiders. Charles Hartshorne moreover, by far the most esteemed advocate and notable elaborator of Whiteheadian thought, has made those aspects of it having to do with deity the focus of his philosophical contribution. Hartshorne clearly distinguishes process philosophy and theology from unrelated classical doctrines, yet with theism as such in the foreground of his work, many have dismissed process thought without a hearing as outmoded or irrelevant to contemporary concerns; while others, finding reformulated theistic principles untenable, have proceeded to reject process thinking in its entirety. What is more, despite traces of process

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[5] C.N. Hartshorne, forthcoming in *Points of View*. Chicago: Open Court, 1996.

thought deep in antiquity and adherents among eminent thinkers throughout history, to date no study has yet appeared that addresses this vision of reality as one coherent, evolving whole, from which an increasing set of universal insights can be distilled, that are clear of esoteric wording and are far more telling than any particular thinker's account.

The present study attempts to extend the appeal of process philosophy by establishing a case for psychical realism - the view that reality is made up of experiential events - and by showing the central role such events can play in a more universally acceptable process vision. Throughout the history of ideas psychical realism has commanded rich and varied metaphysical treatments in its own right, but here the notion is forged as support for the crucial feature of process philosophy, namely the essence of the creative, organic, temporal events that constitute a process. Replacing Whitehead's complexity and Hartshorne's deity with psychical realism in the foreground affords the opportunity to streamline the process perspective. The salient features of process philosophy that a range of process thinkers expound are thereby cleared of specialised phrasing and explained concisely, while the metaphysical progress these views represent are thus emphasised and expanded.

Another reason process philosophy has not had its due is for what some take to be the unusual preliminary notions it is founded upon. Although imbedded in the primary writings, important arguments for establishing the reality of the process realm and the reality of the psychical realm have often gone unnoticed, and the exceptional ontological treatment required once the fact of either realm has been established has often been neglected. Thus the present study is divided into two halves of two chapters each, the first half setting up the second. Book One opens with metaphysical preliminaries on being and becoming. In the first chapter the problem of the nature of a process is considered, various substantive philosophical accounts while historically influential are found inadequate, and an event ontological perspective that grounds being in a complementary becoming is introduced to provide new means for addressing the principal difficulties. Then a second chapter of preliminaries relates being and becoming to the likewise complementary pairs of first empirical experience and rational reflection, and then objectivity and subjectivity. The warranted stress of becoming over being finds analogous expression in the suggested emphasis on rational over empirical and subjective over objective to counteract a similar bias shown wanting in the initial analysis of being. In this way subjectivity is shown

not to be as enigmatic nor as inconsistent with scientific knowledge as is commonly believed, but capable of grounding objective science provided that coherent and adequate metaphysical backing is at hand.

The metaphysics of experience begins in Book Two with a third chapter presenting the case for psychical realism. The thesis is defined and distinguished from related doctrines, and defended independently of the role it plays in process thinking. Common sense, intuitions, and perception are shown to indicate a novel synthesis of realism and idealism, and the analogic and genetic arguments are investigated and objections addressed. The fourth chapter explicates the metaphysics of process thought by highlighting creativity, organicity and temporality as its three essential features, and by marking the psychical realist component implied in each of them. By coupling these fundamental features with psychical realist support we can sustain a process orientation while doing away with superfluous technical intricacies and theological commitments. In the epilogue variants from within a process outlook on final cosmological completions of a creative, organic and temporal model of reality are then considered.

To highlight the psychical realist component in process philosophy is undoubtedly to go beyond mere interpretation, but I hope I have done so in the spirit of using metaphysics to go some way toward constructive criticism, coherent development, and systematic application, which in themselves may aid in explicating and furthering the case for process metaphysics. If the system is thereby revised at times so be it, for Whitehead was the first to suggest that speculative systems stand in perpetual need of revision. By my lights, the essay is perhaps at best another point of departure for the reader's own metaphysical use in interpreting, criticising, developing, and employing process thought. Bear in mind however, as I have tried to do, that the pursuit of truth by the great philosophers is likely to have produced some revealing insights, clear and indispensable concepts, more or less adequate theories, and true judgements. (Some philosophers seem to be seeking the truth but never expecting to find it in another's work.) Originality for its own sake is a vice in philosophy, one that runs counter to that pursuit of truth, even if the attempt to understand and appreciate a vast thinker's views may require that one interprets, modifies, develops, and supersedes those ideas. I suppose there is a progression from less to greater disparity from the original to a derivative statement of the essence of the view in such cases, and that the outcome has much to do with how profound the

initial insights happen to be. The lesser the disparity in the end, the greater the truth of the original ideas. I should hope that it is to Whitehead's credit that what follows are remarks made entirely in light of the process metaphysic that he put forth. As to the earliest known musings as to the way things are, we owe it entirely to Whitehead for recognising and then articulating how reality might plausibly be made up entirely of experiencing entities of some sort. And I owe it entirely to you for even entertaining my own 'shallow, puny, and imperfect' speculations in the closing remarks that there might be gods of all sorts. Little more than an 'exhibition of folly' to be sure, but an old Scottish saying has it that angels can fly because they take themselves lightly.

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Process Ponderings

"How an entity becomes constitutes what that entity is... Its 'being' is constituted by its 'becoming'. This is the principle of process."

PART ONE
The Patron Saints of Change

The Buddha in the East and Heraclitus in the West are the earliest known proponents of a philosophy of change. They both taught some twenty-five centuries ago, and given the isolation of the former and the obscurity of the latter, nowadays their teachings are but voices in the wilderness. Philosophically much has happened to the notion of change since their times, though precious little thought prior to process thinking in the present century has taken the idea of change in a manner as fundamental as theirs.

§ The Buddha

Consider the doctrine of *anicca* espoused by the Buddha. The word translates most directly as 'changing' or as the process of 'arising and passing away', that is as an abstract noun taking the gerund form to underscore the universal nature of the impermanence it represents. *Anicca* on Buddhist reckoning is so utterly pervasive that even the doctrine itself exemplifies the idea of changing or becoming and perishing. It too relies on no being, on no substantive backing whatsoever, and to achieve a full understanding of *anicca* one must attempt literally to become an instance of it. The doctrine is one of the three core doctrines of all Buddhist philosophy, arguably the most basic one from which the remaining core doctrines of *dukkha* (suffering) and *anatta* (selflessness) are easily derived. From the Buddhist point of view, without the insight of the universality of changing, without the understanding that all is in process,[1] we succumb to a world of self-preoccupations out of which universal suffering

[1] The terms 'change' and 'process' as employed here are more or less synonymous.

arises. With the insight of *anicca*, with the constant and thorough understanding of impermanence achieved experientially, comes liberation from suffering and full enlightenment.

> All conditioned things are impermanent, their nature is to arise and pass. When one sees this in wisdom, then one becomes dispassionate toward the painful. This is the Path to Purity.[2]

Followers of the Buddha produced a great literature highlighting the insight that process, change, becoming are the universal forms of reality, carrying this view through with admirable thoroughness, and outlining a way of life designed to uphold and incorporate the reality of becoming into a practical lifestyle in harmony with spiritual development. In addition to rejecting the notion of an abiding substratum or unchanging substance as the grounds for being, the Buddhists likewise rejected the reality of permanent grounding for soul or ego. These permanent grounds of reality were replaced by a thoroughly changing nature (*anicca*) established via the processes of the dependent co-origination of momentary experiences as the primary realities, experiences that do not change, but simply become in an arising that passes away.[3] The early Buddhists were the first to view change as the successive becoming of events having certain relationships to their predecessors. Soul or self-identical ego is merely the relatedness of certain experiences to their predecessors through memory and the persistence of various qualities or personality traits. In the teachings of the Buddha, to achieve experiential knowledge and the profound understanding of change as the fundamental aspect of all reality, including the reality of one's own experiential being, is the way that leads to ultimate spiritual deliverance and enlightenment.

> Observing the impermanence, the changing nature, the fading and the ending of body, feelings, perceptions, mental activities and consciousness, one knows that... body, feelings, perceptions, mental activities and consciousness are impermanent, unsatisfactory and subject to change. So, seeing in this way - as it really is, by perfect realisation - one abandons sorrow, grief, suffering, distress and despair.[4]

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[2] I. Babbitt, trans., *The Dhamapada.* Oxford: Univ. Press, 1936, p.43.

[3] In Buddhism dependent co-origination refers to the genetic analysis of causal inheritance of momentary experience. This ancient doctrine and Whitehead's notion of prehending the 'stubborn past' have much in common. The latter is examined in Chapters Three and Four.

[4] S. Radhakrishnan trans., *The Dhammapada.* Madras: Oxford Univ. Press, 1950, pp.146-147.

§ Heraclitus

Unlike the Buddha, who is said to have taught daily for forty-five years, leaving for his followers the task of gathering and making sense of upwards of eighty thousand recorded sermons and commentaries, Heraclitus left behind a legacy collected in the fragmentary form of a small number of obscure and riddling oracular aphorisms. Dubbed 'the Obscure' even in antiquity,[5] we have only these so-called cosmic fragments and the reports of Plato, Aristotle and the Stoics to go on in uncovering the precise meaning of what Heraclitus had to say.

Clearly Heraclitus did assemble a following who adhered to the doctrine of change as fundamental, and this principal aspect of his thought was taken up again by the Stoics after being largely dismissed by Plato and Aristotle. (Cratylus of Athens, a known follower of Heraclitus, had inspired Plato to write the *Cratylus* examining the doctrine that 'everything flows'. Though the later dialogues show self-moved soul as the source of all change, and occasionally suggest all things are ensouled, Plato failed to generalise the insight which might have entailed the truth of Heraclitus' pronouncement.)[6] Beyond the doctrine of change as fundamental in Heraclitean philosophy there is much room for interpretation. As in the teachings of the Buddha however, three key ideas emerge from the fragments, and the first one - a kind of Heraclitean version of Buddha's *anicca* - provides the grounds for the others. Two well-known sayings from the *Cosmic Fragments* adequately outline this first principle, "It is not possible to step twice into the same river," because "all things are in flux."[7] The suggestion is that reality is comparable to a river in that in flowing, reality changes, and in the process of changing, reality continually loses its being and becomes another. Thus everything is forever in process. The second principle develops the dynamic character of reality by suggesting that the flux consists in a unity of opposites, not in a settled harmony but rather in a dynamic equilibrium in process made possible by mutual opposition. "That which differs with itself is in agreement: harmony consists of opposing tension, like that of the bow and the lyre," for "...everything comes about by way of strife and necessity." Finally, Heraclitus clarifies his view of reality as the harmony of opposites in conflict

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[5] A. Fairbanks, *The First Philosophers of Greece*. London: Kegan Paul, 1898. p.23.

[6] Plato's lack of sympathy is shown when in the *Cratylus* Socrates adds 'like leaky pots'. He continues, "Reflect well and like a man, and do not easily accept such a doctrine; for you are young and of an age to learn. And when you have found the truth, come and share it with me." Alas, the case remains undecided. See Plato's "Cratylus" 440c-d, in *The Dialogues of Plato*, Vol.III, B. Jowett trans. Oxford: Clarendon Press, 1953. p.106.

[7] K. Freeman, *Ancilla to the Pre-Socratic Philosophers*. Oxford: Blackwell, 1948, p.31.

with the claim that it is an ever-living fire. "The world was ever and is and shall be ever-living fire..."[8] Here he emphasises the conception of reality as flux, since fire is constantly changing; he underscores the centrality of conflict in the flux, since fire is a symbol of conflict and opposition; and he highlights the unity of opposites, since fire exists at the point of a process of one thing becoming another.

The philosophies of change espoused by both the Buddha and by Heraclitus now come across as 'voices in the wilderness' because the more commonplace *philosophies of being* tend to treat the process of change in one of two ways: either as altogether unreal and as delusory as time in an eternally fixed static world, or as in principle merely the substitution of one set of properties for another in an abiding substratum, substance, or subject of change. In both of these philosophical persuasions reality consists essentially of beings, not of becomings or events, but in the main the present treatment concerns only the second of the two viewpoints.

It was Plato and Aristotle, not Heraclitus, who principally influenced the subsequent speculative traditions in the West, and they both rejected the notion of change, of flux, of process as fundamental. Plato restricted the Heraclitean doctrine of flux to the world of changing sensible particulars, while positing above this world another one of immutable intelligible universals. Aristotle rejected a philosophy of process conceived as the unity of opposites verging on identity as violating his principle of non-contradiction, which showed that a subject cannot be said to have and not to have the same predicate in the same respect at the same time. He did not go as far as Plato did regarding universal forms, but held that the forms of natural kinds were the specific essences that exist in the particular organisms. For Aristotle the immutable intelligible world above nature was populated with those pure acts or intelligible forms called the separate and unmoved movers. It was a thoroughly Greek idea that a being in process or undergoing change is not of the highest kind, while for a being of the highest kind any change could only be for the worse. Hence the highest being is permanent and all other lower beings keep changing in the vain effort, that is *vain* in principle, to make up for their imperfections. Clearly there is an implicit ranking of being over becoming, of substance over events in such thinking.

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[8] K. Freeman, *Ancilla to the Pre-Socratic Philosophers.* Oxford: Blackwell, 1948, pp.28, 30, 26.

The Greek idea of a separation between a higher realm of changeless perfection and lower changing realm of imperfections had a counterpart in the separation of eternal divine insight and human temporal and therefore fragmentary knowledge. Thus the problem of relating being to becoming has led to an analogous difficulty of relating God's certainty to our uncertain world, a difficulty often resolved only at the high cost of opting for predestination and denying any real freedom. Along with the vast majority of subsequent philosophers in the West, these views were likewise adopted by the Church Fathers, they came to dominate Judaic, Christian, and Islamic theology, and have been prominent ever since. In the East on the other hand, although the idea of the highest being as changeless also arose, it has encountered persistent and subtle resistance from Buddhist philosophical quarters and related spiritual teachings throughout history, and so the consequent dominance of substantive philosophies over philosophies of change or process has not been nearly as pronounced. Even so, the Buddhist doctrine of impermanence cannot in principle manage to dominate philosophical discourse and practical affairs in the manner of substantive philosophy. We turn now to examine the reasons why the nature of change, the essence of process, makes that so.

§ The Problem of Process

The Buddha spoke of arising and passing away and Heraclitus used the image of fire to express the universal dynamic character of reality. They took these images as emblems of the way things really are, but upon reflection there appears to be something missing in such accounts, and the emblems seem altogether problematic. Any philosophy of process, ancient or otherwise, must come to terms with a fundamental difficulty that pervades most of the problems encountered in developing such views. In its most basic form the problem is how to *conceive* of process, a problem first laid out formally in Zeno's well-known paradoxes. But in practice thinkers have struggled with it in any number of derivative forms, including the already mentioned relations between permanence and process, and between God's necessity and our contingency. There are also the relations of process to time, to duration and to succession, as well as the relations of continuity and discontinuity within process. In Pre-Socratic times the Parmenidean One and the Heraclitean Flux represented the two principal responses to the difficulty, the latter denying the reality of permanence as we have seen, while the former denied the reality of process. These responses were extreme measures taken due to the failure of finding reasonable means for

combining both features, yet such measures mark many of the attempts to deal with process throughout the history of thought. Since philosophies of being have generally held sway over those of becoming, in our treatment we shall pursue the problem through a version that isolates a notorious difficulty for substantive philosophical perspectives.

Imagine a seagull diving into the sea. At a certain point the bird hits the water and is thus no longer flying, while earlier it is in the air and thus not yet plunging the depths. For the sake of clarity, if we allow that when any part of the seagull touches the water it is no longer quite fully in flight, and so no longer flying at all, then exactly when is it undergoing *the process of change* from being in flight to being in the sea, when is the bird ever landing? Not at the first point of contact with the water, for then it is already in the sea and no such process is then occurring, and seemingly not at any earlier point, for it is then flying and yet to undergo the process. It appears that we are stuck with two forms of being, one in flight and one in the sea, and no realm of becoming between the two, and the consequent troubles identifying the two seagulls as one and the same.

We ordinarily assume that leaving the sky and diving in is, like every process, a move from a pre-process state to a post-process state; and that anything that is undergoing a process is in a kind of 'neither here nor there' situation between them. We might suppose that there is always a series of states intermediate between the flying bird and the one in the water such that it can only get into the sea by traversing each of these states which occur between the two initial ones. But even allowing for the room such implausible intermediate states would require, the problem arises nonetheless. Simply to be in any one of these intermediate states in no way establishes the fact of being in a process of landing. Indeed the seagull can be in such a state without undergoing any process at all. All we have done in going from the initial to the enriched state description is go from the bigger process of a seagull diving in to a mysterious smaller one claimed to occur within it. The problem of what it is to undergo the bigger process re-emerges as problems about what it is to undergo the smaller ones. This essentially is the problem of process.

§ Generalising the Problem

If we are to accept the ideas and images presented by the Buddha and by Heraclitus as emblematic of all reality, we must not only locate, but clarify the dynamic character of process. The first step in that direction is to note that the essential problem to be developed here is easily generalised: it is but one form of a difficulty that also arises as the problem of being and becoming or as the problem of substance and events. If we begin with being or substance as the basic building blocks of reality, we face the analogously troubling question of how to explain the events that take place involving being or substance, or involving the coming to be of being or substance. To adhere to the notion that being alone makes up the world, it appears that we either must deny the reality of becoming or allow an exception to the idea that there is nothing but being in order to get the becomings or the events started so to speak. Being or substance as static can no more accommodate becomings or events as dynamic than flying or floating seagulls can encompass the seagulls diving in.[9]

The problem of process is therefore a particular instance of a question about how reality is to be generally understood. With regard to this topic, earlier we noted an implicit bias in philosophy that began in antiquity toward that which is permanent, based on the imperfection implied by the fact of the impermanence of undergoing process for beings striving toward that which is permanent, this latter state deemed to be the highest form of being. How influential that philosophical inheritance is today is still an issue of some debate. Indeed a good many thinkers continue to debate the related problem of how to conceive process as utterly unreal and make sense of the largely delusory appearances that constitute our experience of reality. On the other hand, a far more ubiquitous emphasis on substance or being over events or becoming is provided by the very structure of the way we think and speak. In general, there are features of the laws of thought and features of natural language that seem to emphasise the former view of reality over the latter. It is one thing to cast off philosophical ideas from antiquity, but quite another to shed perspectives reinforced in our everyday thought and speech patterns. These features underlying the logic of the laws of thought and natural language provide the setting from beginnings in the classical era and remain as recalcitrant influences throughout the philosophical

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[9] A more detailed account of the relations between the problem of process and being and becoming is offered in the treatment of Aristotle's views on the subject (and those of other historically influential thinkers) in the third part of the present chapter.

treatment of the problem of process through history. Our next step in analysing the dynamic character of process is to fill out our account by outlining the key elements of that history.

PART TWO
A Brief History of Being

§ Being as Substance in Aristotle

The bias toward substance and away from events is never more apparent than in the substantive philosophy of Aristotle. We have already mentioned that Aristotle rejected Heraclitean perpetual process chiefly because it appeared to violate the laws of thought as outlined in Aristotelian Logic. In discussing these laws (identity, non-contradiction, excluded middle) Heraclitus' maxim 'everything is in flux' is used as an example of holding contradictory views, because the doctrine itself, to be true, must not be in flux, "for it is impossible for anyone to believe the same thing to be and not to be, as some think Heraclitus says."[10] Aristotle likewise rejected the opposing view of Parmenides that since process was logically impossible there was no such thing. His position is one between these extremes: recognising that process is fundamental to reality, but also that process without some aspect of permanence is unintelligible. He identifies and consequently grapples with the problem and offers a characteristically detailed account of process in his analysis, an analysis based on the question inherited from the Pre-Socratic philosophers, namely, 'What must being be, in order for process to be intelligible'?

We cannot provide a clear account of his answer without explicitly introducing the Aristotelian concept of substance. The reason is that to be, according to Aristotle, is to be a substance, as distinguished from mere properties or parts of a substance. The properties of course do possess a sort of being, but only derivatively so by supervening on the pertinent substance whereas, "substance in the truest and primary and most definite sense of the word is that which is neither predicable of a subject nor present in a subject."[11] And speculations on the nature of substance in his philosophy inextricably tie

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[10] *The Works of Aristotle*, Vol.VIII, "Metaphysica" 1005a-1006a, W.D. Ross trans. Oxford: Clarendon Press, 1954.

[11] Aristotle. "Categoriae" 2a11, in *The Works of Aristotle*, Vol.I, W.D. Ross trans. Oxford: Univ. Press, 1928. Aristotle's views on substance are thoroughly examined in A. Edel's, *Aristotle and his Philosophy*. North Carolina: Univ. Press, 1982, pp. 39-136; for a brief summary see, J.L. Ackrill's, *Aristotle the Philosopher*. Oxford: Univ. Press, 1981, pp.24-33 and J. Barnes' *Aristotle*. Oxford: Univ. Press, 1982 pp.46-51.

together the problem of being (permanence) and process (impermanence). Aristotle of course has much to say both about substance and about process, and a full account of the many facets of Aristotle's position is beyond the scope of the present study. In the main he does argue that for process to be intelligible there must be both continuity and discontinuity in nature, for in order to make sense of process we must recognise that something is in process relative to something that is not, that every process is from one state of something to another state of something. And that *something* in Aristotle's philosophy is substance. More specifically, that something called substance is the composite of the matter (stuff) and the form (structure) of the things that undergo change. In this idea of substance as matter and form we have a clear case of presupposing a substratum in nature for process. "The most distinctive mark of substance," Aristotle claims, is that "while remaining numerically one and the same, it is capable of admitting contrary qualities."[12]

But Aristotle's account of substance, though the most influential in history, is marred by obscurity and inconsistency. Examining the evidence for the various notions put forth regarding substance, found in the *Physics*, the *Metaphysics*, the *Categories* and elsewhere, lies outside our immediate interests, but it will be useful to simply mention the six basic ideas that emerge. Substance is treated as a core of essential properties, as a concrete individual, as that which can exist independently, as a centre of change, as a substratum for properties, and as a logical subject for predication.[13] Although Aristotle varies the importance of each idea depending on the purpose he sets himself in particular discussions, the first concept, substance as essence, seems to be the preferred sense of the term, an idea which the second and third concepts work to fill out. The last three concepts also seem to form a natural group however, and it is this group that relates directly to the sense of a presupposed permanence underlying process. We shall first examine this latter group.

Aristotle clearly posits a substantive continuity underlying change in three of the four types of change he outlines: the qualitative, the quantitative, and the locomotive. There are always in these cases the three basic elements: the state of the subject prior to the process of change, the subject in process, and the state of

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[12] Aristotle. "Categoriae" 4a10, in *The Works of Aristotle*, Vol.I, W.D. Ross trans. Oxford: Univ. Press, 1928.

[13] D.J. O'Conner, "Substance and Attribute," in *The Encyclopaedia of Philosophy*, P. Edwards ed. NY: The Free Press, 1967, Vol.8, pp.36-37.

the subject after the process of change. This fact provides the grounds for Aristotle's defence of our ordinary talk of process as being indicative of how process ought to be conceived. Perhaps the historical accident of the supreme reign of the conception of substance and being over events and becoming in the West is due primarily to the subject-predicate structure of Greek and most other languages, and only secondarily to the dominance of Aristotelian logic. For Aristotle was committed to the view that events or becomings happened to things or beings in the manner emphasised by natural language, a view he defends in the first book of the *Physics* in an attempt to vindicate our ordinary talk of process.[14]

Here his discussion focuses on the proper logical form of sentences expressing process, or to use Aristotle's phrase, sentences expressing 'coming to be'. The task he sets himself is to show how our ordinary way of speaking of process does not result in paradoxical expressions; that is, expressions directly related to the sort of paradox we saw earlier leading to there being two distinct seagulls, one in flight and one in the sea, and a problematic identity between them, given the mysterious absence of any change in the manner of landing or diving in. After pointing out that the paradigmatic expression of a 'coming to be' will have the form of 'X comes to be Y' as for example 'The man comes to be musical', Aristotle tells us that coming to be is a predication in the making or a predication enroute to obtaining. With the substantive backing of 'the man' on both sides of the expression, the paradox of suggesting that the 'unmusical' is 'musical' once the predicate obtains is avoided. There is a man both before and after the description is applied, so that the 'unmusical' need not come to be 'musical', that is, we avoid the paradoxical description of the 'unmusical' as being 'musical' because the substance 'man' at an earlier and then at a later time takes on both predicates instead. For Aristotle then, substances exist in the fullest sense while other entities such as predicable properties like 'musical' derive their existence from their dependence on substantial being.

It is plain that in this case and others of qualitative, quantitative or locomotive processes, there must be a subject that persists through the process. It is likewise true that Aristotle avoids the paradox by positing a substance, and true that this is demonstrated in the way natural language works. Yet Aristotle side-steps the

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[14] Michael Loux analyses that defence in his forthcoming "Understanding Process: Reflections on 'Physics' III.1" delivered at Edinburgh University, 1994.

analysis of the concept of process and the essential problem in this treatment by simply *presupposing* an understanding of 'coming to be'. We learn how it is that we speak of man becoming musical or of seagulls leaving the air, but here we find no explanation of the *being of becoming* as such. Moreover the failure of the account on its own terms is obvious when we look at the fourth type of process in Aristotle's thought, namely the substantive processes of generation and destruction. The pre-process state of the former and the post-process state of the latter appear to be non-existent. But it is absurd to suggest that before birth and after death a substance persists as non-existing.

At this point we must return to the first group of basic ideas of substance mentioned earlier to understand Aristotle's attempt to supplement his account. The principal point emerging from these ideas is that of substance as essence comprised of the essential properties of matter and form. What persists in substantive process is the matter: for a statue that comes to be it is the marble, for a tree it is the seed, after a living creature's death it is the dead body, and so on. Thus far the account perhaps loses ground with this addition. While not yet addressing the nature of becoming as such, Aristotle has introduced a severe limitation on the nature of creation. To qualify substantive process in this way disallows any act of creating something out of nothing, a point we shall see criticised in the otherwise sympathetic writings of Thomas Aquinas for its theological implications.

Yet there are further developments in Aristotle's account of process. There is a type of substantive process best referred to as activation - the coming to actuality of a potentiality. This type of process emphasises the distinction between things that are *potentially* this or that and things that are *actually* this or that. Aristotle points out that the sort of actuality that is involved in a process of change is the sort that maintains its potentiality once reaching its actuality, while there are other actualities that are incompatible with their correlative potentialities. Building materials have the potentiality of being 'house-buildable' but a house, once built and thereby actual, does not. On the other hand, a running woman while actually running still maintains the potentiality to run, for if not she would be unable to continue doing so. Seen this way we can interpret Aristotle's notoriously obscure pronouncement that change is, "the actuality of that which is potentially as such," as saying, "change is the actuality of the changeable *qua*

changeable."[15] In so doing we focus attention on the aspect of process, a focus required in any adequate account of change. Later we shall see Thomas Aquinas take it up and develop the suggestion that the activity of a continually actualising potential is an important variable for comprehending being and change. Another type of substantive process as activation in Aristotle, incidentally, involves processes divisible in terms of the emphasis placed on the persistence of a fundamental formal nature through stages of growth and development. The irreversible change of children actualising their potential of becoming adults clearly differs from the reversible change of their actualising the potential of getting a tan, only to become pale again.

But once again, in this the final aspect of Aristotle's account of process here considered, we are given another set of distinctions that merely leave the essential problem of process to one side. Just as in our initial sketch of the problem, when for the sake of argument we allowed a realm of smaller processes taking place within the confines of the problematic bigger process, and found the same problem arising in this posited smaller realm, so also in this classification and the many others that Aristotle makes in his analysis we seem to bypass the essential conceptual difficulty. Calling change the 'actuality of the changeable as changeable' is only to say that when something is in the process of changing it possesses and is exercising a capacity to change - a true statement, but trivially so and unilluminating. To return to our seagull, we can apply the potentiality-actuality distinction quite easily to see how unsatisfactory this addition is to the Aristotelian analysis. On the one hand, a bird in the sea has the potential for flight, and once flying continues to have that potential, though it is actualised. Thus far by maintaining its potentiality the activity of the flying bird appears to fit into the group of actualities involving change. But our honing in on the problem in such manner is on a par with the posited smaller processes taking place within a bigger process which is the leaving the sea (or vice versa). On Aristotle's reckoning we know that there is a process taking place here for it fits into a change-involving classification, but again we presuppose an understanding of the nature of process within the group of actualities in which it is involved. The seemingly intractable difficulty in offering an account of process in substantive philosophical terms that addresses our essential problem as outlined remains.

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[15] Aristotle, "Physics III" 201a11, in *The Works of Aristotle*, Vol.II, W.D. Ross trans. Oxford: Univ. Press, 1928.

§ Medieval Being as Active and Related

The medieval thinkers, most notably Thomas Aquinas (c.1224-c.1274), whose extensive metaphysical writings helped consolidate Christian Theology and Aristotelian Philosophy, and who was one of Aristotle's most sympathetic critics, found aspects of Aristotelian substance less than satisfactory. Aquinas retrieved and expanded upon the most tenable of the Aristotelian doctrines regarding being as substance, while exposing the problem that substance as initially conceived by Aristotle rules out the possibility of a process of creation.[16] Aquinas held that substance has two essential characteristics: in-itself interiority and self-transcending relatedness. Substance is active, a centre of acting and being acted upon, and thereby it is communicative and generative of relations.

As to the first characteristic, the individual existent as an enduring centre of its own characteristic actions is the primary exemplar of being.[17] It is the ultimate subject of which properties are predicated, 'ultimate' in that no other subject can take it on as a property or a part; that is, no other being can take on the substance of another as an attribute of itself. Like Aristotle, Aquinas thought that to be is to be a substance, yet more specifically, to be a substance (from the Latin *sub-stans*: that which stands under) is to exist in itself as an ultimate subject of action and attribution and not as a part of any other being. We can isolate three basic points regarding this characterisation of substance: 1) it exists of itself and not as a part of any other being, 2) it is the unifying centre of all the various properties that belong to it at any one moment, and 3) if a being persists as the same individual undergoing a process of change, it is the substance which is the enduring, unifying centre of the being over time.

Hence, there is being if and only if there is substance, or being in a substantial mode, either within being itself or grounding it as its ultimate subject of inherence. The argument is that it is impossible for every instance of being to be a part of some other being which in turn is also a part of another and so on, as this would lead to an infinite regress entailing the endless deferral of the conditions necessary for any being to exist. If this were so, nothing would ever

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[16] N. Clarke redeems these Classical notions in, "To Be Is To Be Substance-in-Relation," in *Metaphysics as Foundation*, P.A. Bogaard and G. Treash eds. NY: Suny Press, 1993. Whiteheadians often reject substantive philosophy simply on the grounds that it lacks any basis for activity whatsoever, but as Clarke's essay demonstrates, the issue is far more subtle.

[17] 'Enduring' as so employed spans the momentary and the prolonged, varying according to the length of act, type of underlying substance, and magnitude of change. The key feature is that the centre abides in reference to the relevant changing activity.

get going whatsoever. The point is important for we have already noted similar troubles a substantive outlook encounters in grounding dynamic ontological entities. Thus, there must always be substance somewhere in being to ground whatever else there is; it is substance as an in-itself interiority that makes a being come to be a unity, to be an identity.

We can easily recognise Aristotle's substantive being in this first characterisation of substance by Aquinas. And with that recognition comes the corresponding failure to finally explain process that had plagued Aristotle's attempts. Both thinkers presuppose an understanding of process in claiming that the substantial backing of discontinuities in properties is sufficient as an account of what happens. The in-itself interiority that Aquinas outlines is simply a formalised rendition of Aristotle's notion of being as core of essential properties, existing independently and 'neither predicable of a subject, nor present in a subject'.

Turning to the second characteristic feature of substance, here too we can isolate three main points: Aquinas contends that a being is essentially self-transcending in that 1) it has an intrinsically active aspect, 2) that is orientated toward self-expressive and self-communicative action, and 3) it is through action that an existing substance manifests its inner being, its interiority, both its existence and its essence. As to the first point, Aquinas writes, "Each and every thing shows forth that it exists for the sake of its operation. Indeed operation is the ultimate perfection of each thing." In developing the second point Aquinas reasons that, "It is the nature of every actuality to communicate itself insofar as it is possible. Hence every agent acts according as it exists in actuality," and that is because, "....Communication follows upon the very intelligibility of actuality." And Aquinas outlines the third point in saying, "The operation of a thing manifests both its substance and its existence," and again, "The operation of a thing shows forth its power, which in turn manifests it essence."[18]

Clearly, Aquinas understood substance to be highly dynamic, for with every process of changing properties the substance itself changes. The point of its being is to express itself, to fulfil itself through action appropriate to its mode of being or essence. Accordingly, the substance of a being is its enduring autonomous self-

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[18] T. Aquinas, *Summa Contra Gentiles.* London: Burns, Oates & Washbourne, 1924, Vol.I, p.102, Vol.III, p.93, Vol.II, pp.220, 286.

identity, as manifested and fulfilled through activity. In a process of changing properties the substance itself changes, but not *substantially* - that is, it does not become another being, essentially different from what it was previously.

The significant point for our purposes is that for Aquinas being substantially self-identical does not imply a lack of process or change. Rather self-identity is dynamic and accommodates a wide range of processes within it, but always within limits, for given a process of extreme change the essential self-identity may fail to maintain itself and dissolve into another thing. This development of substantive philosophy is the outcome of Aquinas' idea that the core of every real being consists in its '*esse*' or *act of existence*, construed not as a form or essence but as active presence.[19] It is due to this dynamic interiority that beings by their nature as existing beings, as beings in act, tend naturally to flow over into action according to their essence. And since for Aquinas action is not merely self-expression but also self-communication, every being is thus oriented toward all other beings, presenting itself and reciprocally receiving self-expressions of other real existents in its own being. Every substance as active consequently becomes the centre of a web of relations to other active beings, with the actions of beings the principal generators of real relations between them. An existing substance, from the standpoint of Aquinas' metaphysics, *cannot be* without *being related* in some fashion; to be a substance and to be related are distinct but complementary and inseparable aspects of every being. All being, in addition to its in-itself interiority, is comprised of self-transcending relatedness.

Aquinas' account of substance seems to be a step in the right direction when viewed from the standpoint of having recognised the neglect in substantive philosophy to adequately address the problem of process. He retrieves from Aristotle the only *prima facie* version of substance that appears tenable, that is, the notion of the dynamic nature of an abiding centre of action. He generalises this insight for all being, making it a requirement necessary for existence, and thereby rejecting the Aristotelian distinction that restricted change to the realm of 'the changeable *qua* changeable'. Perhaps implicit in this move toward generalisation is the notion that an account of process must begin with the pervasive dynamic quality of being; and to this corrective Aquinas adds an

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[19] E. Pols discusses this notion as developed in contemporary metaphysics in, *The Acts of Our Being*. Amherst: Univ. of Massachusetts Press, 1982; and briefly in, "The Nonspeculative Basis of Metaphysics," *Process Studies*, Vol.15, Summer 1986.

important emphasis on relations. Both these characteristics will occupy pivotal positions in philosophical accounts of process much later.

Finally, Aquinas raises a significant objection when he claims that Aristotle's position does not allow for creating something out of nothing. He is primarily concerned with deity and argues that the creation story is impossible on Aristotle's account. Here Aquinas is focusing on one type of substantive process examined in Aristotle's notion of actualisation of potentiality, that which obtains in a curiously excitable boy for instance when the potential to come to be a philosopher is actualised as the boy grows up to be Socrates. The emphasis in these processes is placed on the fundamental persistence of a formal nature through stages of development, a feature marked by its irreversibility. For unlike say a confused Socrates who may come to be clearheaded and still maintain the potential for further confusion, the fully grown Socrates, once actual, loses the potential for excitable boyhood. It is this latter sort of process that represents the paradigm of all being for Aquinas.

The core of being is not its essence but its active presence, a presence with a drive toward its appropriate form of perfection. There is an implicit sense of generative process at work in Aquinas' thought which helps to explain his insistence on 'somethings' coming from 'nothings', an idea that foreshadows insights into the directional nature of time and the pre-eminence of creation and becoming, as grasped by the many recent process philosophers examined in subsequent chapters. We shall see this medieval insight, though neglected throughout early modern philosophy, come to play a key role in contemporary metaphysical conceptions of process. As for the treatment of being in early modern philosophy, here a more pronounced brevity marks our brief history as we discover, despite inheriting Aquinas' classical 'near-miss', just how far wide of the mark the accounts of these thinkers were to become.

§ Substance as Self-Enclosed in Descartes

Rene Descartes (1596-1650) significantly shifted the change in meaning of substance, a change that would prove to extinguish any hope that Classical ideas of being could with some revision fully account for the essential nature of process. He accepted some aspects of Aristotle's position, defending for instance the idea of substance as a logical or formal subject and as a substratum by arguing,

> ...that it is a thing in which this something that we perceive or which is present objectively in some of our ideas, exists formally and eminently. For by means of our natural light we know that a real attribute cannot be an attribute of nothing.[20]

Descartes also believed that we are only directly aware of the attributes of substances, not of the substances themselves, knowing the latter only by inference from the former.

> Everything in which there resides immediately, as in a subject, or by means of which there exists anything that we perceive, i.e. any property, quality, or attribute of which we have a real idea is called a substance.[21]

And along with the inferred substances underlying these attributes, Descartes likewise posits an essence to being, in this case via the essential traits of extension and thought for material and thinking substances respectively.

In the main, however, Descartes' modifications do away with those elements of being suggestive of a dynamic principle, with the result that his account only widens the gulf between substance and change, between permanence and process. Unlike Aquinas who stressed relational features of being, Descartes insisted that substance was, "a thing which so exists that it needs no other thing in order to exist."[22] In order to side-step the blasphemous implications of postulating being as existing independent of God, he allowed that of the three types of substance - matter substance, mind substance, and God - only the last one strictly meets the definition, while the others do rely on God for their being. Yet substance so conceived is self-enclosed and essentially unrelated to other being, existing *by-itself* and isolated in contrast with the Classical idea of existing *in-itself* and relationally. Given the high degree of autonomy for substance, relations only come in at a distinctly lower, more adventitious level, and even the 'clear and distinct' knowledge of the rest of the world is derivable in principle from the innate ideas of thinking substances.

As for offering an account of process, Descartes' position fails first by taking up the troublesome notion inherited from Aristotle of substance as the logical subject of attributes, and second by emphasising the independent existence and essential isolation of substance. In trying to graft change onto substance as an

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[20] R. Descartes, *The Philosophical Works of Descartes*, Vol.II. E.S. Haldane & G.R.T. Ross eds. Cambridge: Univ. Press, 1912, p.53.

[21] R. Descartes, *The Philosophical Works of Descartes*, Vol.II. E.S. Haldane & G.R.T. Ross eds. Cambridge: Univ. Press, 1912, p.53.

[22] R. Descartes, *The Philosophical Works of Descartes*, Vol.I. E.S. Haldane & G.R.T. Ross eds. Cambridge: Univ. Press, 1912, p.239.

attribute, we run into the difficulty of the incommensurability of being and becoming mentioned earlier in conjunction with Aristotle's account. No matter how minutely one isolates a state of a substance for analysis, its substantial processes of actualising potentiality and all other derivative processes it may undergo seem to slip from the description. Moreover, many changes, such as changes in the weather or in the situation, do not seem attributable to an underlying substance in any straightforward manner, a point we shall consider in more depth in the final part of the present chapter.

The independent existence and essential unrelatedness of substance in Descartes implies that in the case of matter substance, it is the substances that are material, rather than that matter is substantial as Aristotle believed. That is, for Descartes matter itself is a substance, and is defined solely as that which occupies space; it is defined by but the one positive trait of being extended, and by the many negative ones of being passive, inert, devoid of any self-movement or activity. There is no improving of a bit of matter as so construed, and thus both Aristotle's notion of potentiality and Aquinas' idea of active presence are absent.

Every substantial process, along with quantitative and qualitative process, is thereby reduced to changes of motion. In Descartes definition of motion there is no reference to potentiality. Rather it is, "the transference of one part of matter or one body from the vicinity of those bodies that are in immediate contact with it... into the vicinity of others." Following on from this, motion is, "the transportation and not either the force or the action which transports," and, "the motion is always in the mobile thing, not in that which moves."[23] Here Descartes is reducing the question of what produces change in bodies to the question of what produces motion in them. And since, unlike Aquinas, he contends that something cannot come from nothing, "Now it is manifest by the natural light that there must at least be as much reality in the efficient and total cause as in its effect."[24] Then any account of process accordingly shifts its focus toward the remote activity of a first mover beginning the causal order as a sequence of events or of bodies in motion.[25] Hence, Descartes follows his predecessors in

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[23] R. Descartes, "The Principles of Philosophy" in *The Philosophical Works of Descartes*, Vol.I. E.S. Haldane & G.R.T. Ross eds. Cambridge: Univ. Press, 1912, p.266.

[24] R. Descartes, "Meditations on First Philosophy," in *The Philosophical Works of Descartes*, Vol.I. E.S. Haldane & G.R.T. Ross eds. Cambridge: Univ. Press, 1912, p.162.

[25] Note our focus here is on the causal nexus of *bodies*. In respect to the voluntary operations of the mind, Descartes is a leading spokesman for indeterminism. Even so, his dualistic emphasis led to difficulties such as an implausible conception of free will not determined by anything else at all, or of animals, by lacking a cogito, conceived as purely mechanical systems.

embracing a substantive philosophical outlook which helps to foster the problem of process, yet while failing to provide needed improvements to inadequate answers, Descartes' account loses ground in terms of any specification of the problem achieved by earlier Classical efforts.

§ Substance as Inert and Unknowable in Locke

John Locke (1632-1704) presented another variation on the concept of substance, one that continues the reductive trend initiated by Descartes, and likewise fails to address the problem of process. He criticised the Aristotelian concept of a substratum of properties because such an ontological support was nowhere to be found empirically. Yet in more rationalist moments he seems to hesitate from committing himself to a full rejection of a substratum. Consequently, there is an unresolved tension in his account, with substance an awkward counter-example to his theory of knowledge based solely on meaningful concepts all originating in experience.

Locke makes a confessedly inadequate attempt to escape the problem through his focus on a distinction between specific substances and the general idea of substance. From an empirical standpoint he notes that experience acquaints us with many simple ideas, many of which are constantly presented together. The mind then gives such groupings one name and thereby arrives at a complex idea. But a substance so defined only offers a nominal definition. We merely come to use one word when we refer to a group of conjoined properties which, "are nothing else but a collection of a certain number of simple ideas, considered as united in one thing."[26] So specific substances are but synonyms for these properties. Regarding the support for the properties of simple ideas, that is, the general idea of substance, Locke admits that the notion of a substratum, despite being mysterious, is posited as an expediency.

> because we cannot conceive how they should subsist alone, nor one in another, we suppose them existing in and supported by some common subject; which support we denote by the name substance, though it be certain we have no clear or distinct idea of that thing we suppose a support.[27]

Substance then is not a positive concept but merely an 'obscure and relative' notion of, "the supposed but unknown support of those qualities we find

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[26] J. Locke, *An Essay Concerning Human Understanding.* Oxford: Clarendon Press, 1894, Vol.I., Bk.II, 23, 14, p.405.

[27] J. Locke, *An Essay Concerning Human Understanding.* Oxford: Clarendon Press, 1894, Vol.I., Bk.II, 23,4, p.395.

existing, which we imagine cannot exist *sine re substante* without something to support them."[28] By stipulating that substance is an inert, unknowable substratum of the properties which alone are known to us, Locke admits that, "our idea of substance is equally obscure, or none at all, it is but a supposed I know not what."[29]

Needless to say, the unknowable substantial substratum on Locke's reckoning is passive in principle, for any influence detected empirically is by definition a property of properties. Substance is essentially inert, unchanging in its being, without dynamic, self-communicating relations to its properties nor through them to the world beyond; and like Newton's atoms not active but only moved from without. All the significant characteristics of Cartesian substance are recognisable in this account, bringing in their train a similarly inadequate account of process, and there is an additional emphasis on the epistemic difficulties both accounts imply. Again the impossibility of developing an account is clear when beginning from an orientation of unchanging substance, and now with Locke's contribution the substantial stumbling blocks become far more mysterious.

§ Substance as Separable and Unintelligible in Hume

When considering substance, David Hume (1711-1776) exploited the inconsistencies that led Locke to hesitate, and in so doing carried the empiricist project to logical conclusions, which in characteristic fashion undermined much of the previous philosophical work in the field. Given Hume's rigorous application of a more consistent empiricism that based all knowledge on ideas derived from impressions, he noted two key facts regarding substance: that we have no impression of a thinking *substance* save as an assemblage or 'bundle' of particular ideas and impressions, and that we have no impression of a physical *substance* distinct from our impressions of particular physical objects. To speak of either 'spiritual substances' or 'corporeal substances' is therefore to speak in meaningless metaphysical jargon, for substance according to Hume was simply an 'unintelligible chimaera'.

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[28] J. Locke, *An Essay Concerning Human Understanding.* Oxford: Clarendon Press, 1984, Vol.I. Bk.II, 23,2, p.392.
[29] J. Locke, *An Essay Concerning Human Understanding.* Oxford: Clarendon Press, 1984, Vol.I. Bk.II, 23,15, p.406.

Hume's analysis relies on a fundamental principle of his philosophical reasoning: the idea that distinction implies separability. That is, if something has distinct being then it is separable - at least in principle or imagination - from all other being, and that no necessary connections hold separable beings together. The qualities of a thing such as its, "solidity, extension, motion... are all complete in themselves, and never point out any other event which might result from them."[30] In searching for empirical grounding for the notion of substance, Hume assumed that it would have to be separate (or separable) from its properties, existing in some sort of bare indeterminate state. Since he rightly found such an idea incoherent - for all experience comes by way of *determinate impressions* - he concluded that no such substance exists.

However, the principle that distinction implies separability is a metaphysical doctrine simply assumed by Hume with little justification, whereas from the standpoint of Aristotle's actualising potentiality and Aquinas' active relating, there are grounds for arguing against it. Both of these thinkers held that substance is distinct from any of its particular properties, but yet was inseparable from some such properties. That is to say that substance, defined as either a source of actualising potentiality for Aristotle or as activity and relations for Aquinas, necessarily possesses some properties, though no necessity dictates any in particular. Substance is immanent in particular properties and expresses itself through them, but transcends them all. To see an application of the point regarding Aristotle's gloss on the nature of substance, consider a wooden log: it necessarily has a shape, but only contingently has the shape say of a rocking horse once it has been crafted thus to actualise that potential. Applying the point with Aquinas' view in mind, think of a human personality: some character traits or other are necessary to be an active and relating person, but any specific ones that obtain could have been otherwise.

The force of the counter to Hume's principle and a host of applications of that counter will be the focus of discussion in subsequent chapters, but what is notable for now is that in finding separable substance unintelligible, Hume unwittingly emphasises the inability of substantive philosophy to account for the nature of change. This is done in two ways. First, by adopting Cartesian and Lockean notions of substance in his influential critique, historically Hume

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[30] D. Hume, *Enquiries Concerning Human Understanding and Concerning the Principles of Morals*, L.A. Selby-Bigge ed. Oxford: Univ. Press, 1955, p.63.

reinforces the neglect of the Classical ideas which had at least achieved a valuable isolation of the realm of change so to speak, an isolation that may otherwise have led to further constructive developments.

Second, since no immanent substantial principle whereby process could be initiated from within being is allowed in Hume's analysis, all process is reduced to simple succession. Hume appears on the face of it to be quite the philosopher of process in his appeal to reject the substantial grounding for the properties that compose our experience. There just are certain experiential events taking place at particular places at particular times without necessary connections providing influence between their separate existences. We must be careful however to distinguish the appearance of process from an account of it in reviewing Hume's position. In a sense Hume applies an unjustified metaphysical principle to justify the reduction of much of our philosophical work to anti-metaphysical concerns with epistemology. He contends that just as the particular contingent regularities that obtain in the temporal sequence of events provides the grounds for our recognition of a causal order in nature, so also the manner in which experience stacks up is such that we derive the idea of process solely from their succession. Thus along with exposing the unintelligibility of the notion of separable substance (and with it the idea of a substantial source for initiating process from within), Hume clears away any need for a mover to initiate (from without) what from our perspective seems to be causal influences in the form of process being passed on through time. Hence any accounting for the nature of process has seemingly lost metaphysical ground in this philosophy, while the all too characteristic failure to face the problem of process by explaining it away is implicit in the epistemic reduction of simply labelling it as succession throughout the analysis.[31]

§ Substance as a Category of the Understanding in Kant

Immanuel Kant (1724-1804) extended the epistemic emphasis in his treatment of the idea of substance by reasoning that substance does not refer to a feature of the objective world independent of human thinking. According to Kant we think of substance as unified and permanent; and when comparing it to the unity of the self he claimed that it was, "an equally necessary unity of the synthesis of all appearances according to concepts,"[32] and added that, "in all

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[31] In the third chapter Hume's position is dealt with in greater detail.
[32] I. Kant, *Critique of Pure Reason.* N. Kemp Smith trans. London: Macmillan, 1950. p.136.

change of appearances substance is permanent; its quantum in nature is neither increased nor diminished."[33] Kant believed the unity and permanence to be features contributed by the human understanding to the world of phenomena. Therefore we cannot help but classify our experience in terms of the category of substance. While for Hume substance is rendered unintelligible and thus non-existent, with Kant's radical revision, substance is likewise removed from being a fundamental feature of the objective world, but in this case it becomes an aspect under which we are subjectively confined when classifying experience, due not to the world but to the nature of our cognition.

His view of substantial permanence has direct bearing on his position regarding process. Like his early modern predecessors he thought that all change was merely transformation: things could not come into existence from nothing, nor could things go completely out of existence. He argued that without this metaphysical presupposition there could be no unitary temporal system and therewith no unified substantial being. That is, the intelligibility of co-existence and succession depend on an enduring backdrop, and because time itself cannot be perceived, that backdrop must be one of permanent substantial things. Thus Kant rejects the idea of all things in process in an absence of any permanence as logically impossible.

In broad outline the argument is reminiscent of the Classical notion of distinct yet logically inseparable substance. But the focus here is to provide further logical support for a concept wholly like a Lockean substratum. Yet Kant overlooks the fact that he could have established a substantial backdrop to ground our sense of a unitary temporal system without positing any *absolute* permanence to that grounding. Stipulating a relatively enduring backdrop, that is one that abides longer than the change that it contrasts, would have served the same purpose. We shall not pursue the idea at this point, other than simply to note that he then would have kept open the possibility of beginning with some measure or other of process as a fundamental concept instead of substance. This in turn would have allowed possible options for escaping the difficulties confounding substantive accounts time and again in their attempts at embracing change when starting from the point of view of being.

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[33] I. Kant, *Critique of Pure Reason.* N. Kemp Smith trans. London: Macmillan, 1950, p.212.

Kant's formidably influential writings brought on generations of transcendental idealistic debate, and fostered a proliferation of offshoot doctrines (both for and against his basic ideas) and the attendant schools of thought to follow the various consequent developments through. Nowadays an impressive array of ideas essentially inspired by Kant are still defended quite passionately. A range of thinkers from as far afield as phenomenologists are from linguistic analysts have accepted a basic Kantian turn away from ontology and toward epistemology. In many instances the result has been a subtle, often unacknowledged, inheritance of a permanent Kantian substantial backdrop to serve as grounds (however inadequate) for the nature of phenomena in process. It is well beyond our present concerns to catalogue the differing yet significant opinions on substance put forth in the present century, and even determining those of lasting interest is no easy task.[34] Our brief history will conclude then, by examining one key figure from a movement recognised as eminent throughout English-speaking philosophical quarters.

§ Substance as the Basis of Identity in Strawson

The contemporary philosopher Peter Strawson (1919-), working within the linguistic analytic tradition, follows Kant in holding that the intelligibility of the world requires an enduring backdrop. Accordingly, in developing what he refers to as 'descriptive metaphysics', he provides one in arguing for a substance ontology. Individuals are conceived as the basic particulars that satisfy the essential conditions for linguistic reference. In order to use language intelligibly we must be able to identify and re-identify the basic particulars in the world successfully, and Strawson argues that such identification requires a common conceptual framework upon which common language users may rely.

> We can make it clear to each other what or which particular things our discourse is about because we can fit together each others' reports and stories into a single picture of the world;[35]

We maintain the particularity of individuals on Strawson's reckoning by locating them in an agreed upon world and aligning all reference to them in terms of that world. On subsequent occasions we have to recognise the individuals that we

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[34] N. Rescher notes an unjustified trend against process in contemporary philosophy, supported by examining the views of Quine, Goodman, and Strawson in his, "The Revolt Against Process" *Journal of Philosophy.* Vol.59, 1962, pp.410-417.

[35] P.F. Strawson, *Individuals: An Essay in Descriptive Metaphysics.* London: University Paperbacks, 1964, p.38.

have referred to earlier, a fact calling for a shared space-time coherence to things. Strawson continues,

> ...particular-identification in general rests ultimately on the possibility of locating the particular things we speak of in a single unified spatio-temporal system.[36]

Developing a substance ontology of individuals, as required by the successful operation of reference, commits Strawson to viewing all else in the ontology as derived from these basic individuals. We observe enduring spatial-temporal substantial individuals and build up all other categories of being from them. Processes in the form of events and becomings therefore depend on the substantial beings involved; we come to understand process through the perceptual input from *the being* of individuals. Our ideas of the unobservable entities that scientists or psychologists speak of, for example, rely on inferences from basic observable individuals. There is no relativity theory without the empirical confirmation of bent light, no anger without the mark of a tantrum.

As mentioned above, Strawson calls this technique of deriving a metaphysical view by analysing the conceptual scheme embodied in natural language and the laws of thought 'descriptive metaphysics'. Clearly the so-called descriptive metaphysician accepts an epistemic bias in developing an explanation of reality, whereby the ways and means of *our knowing* become the measure of all things, and descriptions of the structure of our thought about the world become the extent of a feasible metaphysics. Going back to the beginning of our brief history, recall that one of the principal reasons Aristotle suggested the priority of substance was likewise based on the intractably substantial features of natural language and the laws of thought. For language reinforces the notion of changes, processes, events as having a kind of existence dependent on particular substantial things. Grammatical subjects name the individual substances, and predicates in the form of verbs and adverbs describe the processes that the grammatical subjects undergo. In thought and in language individual substances are primary and enduring while the processes are what is undergone by such substances over time. It is this feature of natural language and a comparable feature underlying the logic of the laws of thought that has influenced many a

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[36] P.F. Strawson, *Individuals: An Essay in Descriptive Metaphysics.* London: University Paperbacks, 1964, p.38.

metaphysician. Hence the widespread extension in metaphysics of those features to cover all of reality as such.

But Strawson, along with his many substantive-philosophical forebears sanctioning such extrapolation, can be challenged in two ways. First, descriptive metaphysics is based on the assumption that ordinary thought and language can and does adequately embrace the nature of reality. This assumption need not be accepted. We saw for instance how empiricist projects as thoroughgoing as Hume's failed to unearth any substance as that which upholds what we do experience. This appears as strong evidence against such an assumption. Second, for descriptive metaphysics to make claims adequate to all reality entails the constancy of our conceptual schemes over time and between different thought and language patterns. This seems implausible when considering evidence of evolution and anthropology. Primitive, ancient eastern, and contemporary western civilisations may not have all that much in common conceptually. Compare the devout and universal reverence for the Pharaohs of old with the widespread and frank atheism of today. Even present-day cross-cultural differences outline profound conceptual distinctions between simple-minded and sophisticated peoples. Hopi Indians make do with fewer verb tenses than New Yorkers. Evolutionary thinking, incidentally, is both troublesome to incorporate and awkward to omit in a chronicle of the philosophical treatment of being and becoming, and in the next part a mere sampling of the relevant ideas are presented.

We are now at the end of our chronicle of the treatment of being in the history of thought, and with Strawson's descriptive metaphysics we have in many ways come full circle. Obviously the problem of process remains as insuperable a difficulty as it was in Aristotle's day and for the very same reasons. To begin with substantial individuals, as Strawson does, confines analysis to these enduring beings and what happens to them. But with the descriptive metaphysical method those happenings are likewise construed in terms of individuals or derived from them. Events, processes, becomings - changes of any sort - are reduced to some combination or chain of states of observable individuals from which they are derived, each description being built up from observable being in one form or another. The links of derivation may include a good bit of complexity, but process itself finally falls out of such description. Far from being merely inadequate, ordinary language in the end offers no account of process at all, given that it embodies the substantive bias that we have seen confound any such

attempt. Since language divides reality up into subjects (Strawson's 'individuals') and predicates, it tends to reinforce our habit of seeing the world consisting of unchanging individuals and their properties.

PART THREE
Evolutionary Intimations

In one very important sense, the theory of evolution has rendered reality into a changing, dynamic, temporal affair in process once and for all. Philosophers, scientists, indeed all those of average education, can no longer enjoy the unquestioning convenience of stopping everything there is in order to get a better look and to take more precise pictures of reality's finer points. Evolution has it that all is indeed in flux, and however fine a picture one is after dictates just how inaccurate any static renderings invariably turn out to be. (Yet a qualification is required, for Einstein of course did not prevent the physics of Newton from serving accurately on marketplace scales, and just so Darwin did not supplant the basic scheme of Aristotle for dividing up the amphibians.) The attraction however, of the theory of evolution for our metaphysical purposes is that, more than any of the substantive views catalogued thus far, we should expect evolutionary thinking to emphasise the fundamental importance of the idea of process, and so locate the conceptual difficulties it involves wholly in the foreground of analysis.

§ Early Inhibitions

Yet evolution theory in both its Darwinian and its most accepted Neo-Darwinian forms has all but neglected the philosophical problem of process. This in part was the result of historical accidents: the theory was first conceived and refined by scientists working well within a mechanistic, materialistic paradigm that assumed an enduring substantial backing for dynamic process. All becoming, despite a new emphasis on the outcome of natural phenomena over time, was simply viewed as incremental over movements of otherwise static being. This view gained support from the fact that the sciences of the day enjoyed continually sharpening success at fixing the flights of stars and marking the forms of molecules in light of the blind clashing of substantive atoms. Ironically what in essence was a theory about *dynamic evolving process* in a sense helped further a naturalistic reduction of the appearance of process to the reality of substance. The Laplacian scientific ideal of perfect predictability held even greater sway once the formerly uncharted organic frontier was also subjected to reason, once its temporal patterns were thereby suggested, once the ticking of

Newton's cosmic clock was heard right within the workings of organic phenomena, our own species among them.

But the loud and clear application of evolutionary thinking at the outset proved to be too close indeed to the human community. Another historical accident involved the initially premature extensions of the theory into the realm of human social structures. Upholders of the official biological line attacked extensions such as the shocking Social Darwinism espoused by Herbert Spencer (1820-1903), which amounted to a characteristic blend of early speculative departures from Darwin's ideas. Like so many others, after creating a popular stir, it was finally refuted for its unbridled, pseudo-scientific meanderings in and around the known scientific facts. But ultimately the more significant reaction was the consequent suspicion of all such speculative ventures. Hence the theory was strictly confined to biological facts; attempts to broaden its applicability or to provide the speculative completions its universality urged were largely abandoned or simply ignored.

§ Evolution Evolves

Nevertheless, Darwin's ideas have developed a great deal even under the confines of positivistic methods in science.[37] Theorists and researchers claim to have generalised the theory to account for known facts in every conceivable domain of investigation. What began as a set of intriguing insights regarding the origin of biological species,[38] has since become an elaborate explanatory principle for all existence great and small. The concept of natural selection has been recognised as applying universally to the animate and the inanimate world, and universally to the physical and psychical world alike. Everything from snakes to snowflakes, from subatomic particles to star clusters, from semantics to spiritual practices, all such entities and endeavours are interpretable in the basic terms of evolutionary thought. The existence of an entity of whatever sort depends on its particular constitution in relation to its environment.

Moreover, the philosophical distinction between becoming and being, and the intractable troubles with process in substance thinking, are more clearly in focus with the acceptance of the more generalised theory. First, because its universal

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[37] See especially, P. Bowler, *Evolution: The History of an Idea.* Berkeley, CA: Univ. Press, 1984.

[38] Strictly speaking, as yet the theory has said little as to the *origins* of species, let alone to all existences. Unembellished, mechanistic natural selection rather concerns the *modifying and preserving* of species over time. Darwin's own gradual adaptive divergence scenario, despite its intrigue, continues to be challenged for its inconsistencies with scientific data.

applicability suggests that microscopic as well as macroscopic phenomena become a significant focus of study, and second because the theory thus generalised constitutes a corrective in outlook, naturally inducing considerations of process as fundamental. This second point, incidentally, reveals just how entrenched a substantive outlook can be, by exposing the widespread philosophical tendency to ignore the obvious in the attempt to maintain conceptual tidiness. For accepting the basic idea that evolution has and continues to occur ought to entail a revolutionary shift in the ontological status of the theory's subject matter, a shift away from substance or any other hypothetical entities held to endure. Evolution eliminates any permanence, even as applied to universals. Although logic textbooks nearly always have it that 'all swans are white', the theory turns animals, groups of animals, biological species, groups of species, indeed in its generalised form *all existence whatsoever*, into unique individuals, into links of a genealogical nexus. Accepting evolutionary thinking leads to there being no absolutely rigid laws even for evolution, for such laws concern universals while evolution rather implies that everything is one individual system pervaded by process.

Unfortunately, what seem to be promising developments *in theory* end up being little more than provocative pointers *in practice*. To view reality evolutionarily, that is as inherently temporal and dynamic, has not in itself advanced the case against substantive philosophy or resolved the problems regarding the nature of process all that much. Even as applied at atomic and cosmologic levels, the solutions on offer typically take the form of how processes 'stack up' so to speak, and ignore the more basic ontological issues. Owing perhaps to the early conceptions and revisions based solely along biological lines, which were cast in terms of entities perceived to work as mechanical cogs in biological machinery (the genes and chromosomes of RNA and DNA molecules), the assumption of substantive backing and the question of a process as such were easy to overlook, and continue to be neglected. Owing as well to the metaphysical conception of the problem of process, no pivotal difference appears to bear directly on the issue, whether evolution theory implies that reality is simply cyclical and repetitive in its dynamic character or essentially creative and genuinely evolving in novel ways. Thus the theory, for all its extensive applicability, is not so much an exhaustive reform of substantive thinking, but merely a suggestive tangent to the difficulties, and thus far from complete.

§ Darwin's Deficient Idea

The incompleteness is evident even prior to extending the biological thesis. Just as in the generalised theory, the emphasis in its narrower form is on natural selection. In short, offspring struggle for limited environmental resources, they vary in their usefulness when faced with shifting environmental processes, and those inheriting the more useful variations are naturally selected.[39] Five separate issues have been prominent in debate over this orthodox view. The first one, now resolved for the most part, concerns the 'modern synthesis' achieved between natural selection and mutation theories which were initially thought incompatible (but later fostered population genetics). But a second one, partly arising with the resolved synthesis, concerns *explaining why* acquired characteristics are not passed on to offspring. Genetic mutation research helped uphold Darwin's ideas (over Lamarck's) by showing the prohibitive mechanisms involved, but a pertinent philosophical question has been largely ignored. Since mutations allowing the inheritance of learned traits would clearly mean a selective survival advantage, and since there is nothing of a physical sort to prohibit such a scheme in principle, we should expect organisms to have evolved in this manner, which makes the lack of evidence indicating any whatsoever quite inexplicable. It could be that there is something in the nature of change itself that needs to be unpacked prior to achieving an adequate explanation.

A third issue, less convincingly worked out than the first but less neglected than the second, concerns gaps in the fossil records, which appear to imply an absence of the long line of graded and gradual modifications the theory requires. Darwin had declared that, "Natural selection... can produce no great or sudden modifications; it can act only by short and slow steps."[40] But fossil evidence consistently reveals discontinuities unaccountable by Darwinian natural selection alone. Although a theory proposing a rapid process of species creation has made some headway,[41] that very modification helps shift emphasis toward the more generalised theory, by identifying significant evolutionary moves as acting on species and populations rather than on the individual reproducers. In the very

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[39] Note that the stress ought to be on *natural* selection. What survives is merely what the environmental factors do not destroy. The natural counterpart of differential survival is differential destruction, for nothing is either selected or destroyed for any purpose.

[40] C. Darwin, *The Origin of the Species.* NY: Modern Library, 1952, p.443.

[41] This theory was first advanced by J. Gould and N. Eldredge. See especially, "Punctuated Equilibria: the Tempo and Mode of Evolution Reconsidered," in *Paleobiology*, Vol.3, 1977. This thesis and generalised evolution recently defended in R.Dawkins, *The Blind Watchmaker.* London: Longman, 1986, and D. Dennett, *Darwin's Dangerous Idea.* NY: Penguin, 1995.

least, the shift affords a clear model for how the small scale individual processes (on the order of developing live individuals) can combine productively to engender large scale ones (on the order of developing organic types). This shift is of interest for investigating the nature of process in that it also re-directs the subject of study away from microscopic parts seeming to function mechanistically in individual organisms, and toward a fundamental and pervasive process phenomena working on macroscopic wholes as well. If the early conceptions of evolution could overlook embedded ontological questions involving process, the later ones at least unearth a lot more that is then to be overlooked.

Another inadequacy which likewise puts the ontological question of process in the foreground is the lack of explanation for the fact of evolving complexity as such. Simpler organisms and - to address the generalised thesis - non-organistic entities, appear to display greater natural selectivity features. Moreover, the theory has no mechanism at its disposal to provide an aim toward greater complexity, for being complex is not a prerequisite for survival endurance, and is often a hindrance. In terms of organic life, the simpler something is, the easier it is for it to grow, to feed, to maintain normal functioning; and typically the greater its proliferation and abundance in nature. And obviously small, hard, simple stones tend to persist longer than big, soft, complex creatures. The predicted outcome from the operating of natural selection is not complexity, but hardiness. In fact the theory of evolution appears consistent with an opposite aim toward simplicity. For present purposes, highlighting how the view is lacking in this particular is enough to suggest that something fundamental and pervasive might be amiss.

Finally, there is the issue of the missing explanation for the fact of consciousness, a double-barrelled difficulty given that consciousness does not seem altogether selectively valuable nor explainable via emergence. Although sentient experience has evolved throughout the biological realm (and evolutionary cosmologists cite statistics suggesting its probable evolution throughout the heavens), it is not clear that conscious beings display either an adaptive edge or hindrance over non-conscious ones fitted for their environmental niche solely in terms of appropriately responsive behaviours. In addition, if we confine the theory to an assumed, unchanging, substantial backdrop, revision may take it some way toward explaining the appearance of organic life from inorganic material, but the theory is still hard-pressed to

explain an altogether abrupt emergence of consciousness from organic life. For "consciousness, however little," as William James insisted, "is an illegitimate birth in any philosophy that starts without it, and yet professes to explain all facts by continuous evolution."[42] But bear in mind the distinction between consciousness and intelligence. Knowing what goes on and how best to fit into one's environmental niche are aspects of intelligent cognitive accommodation, and are obviously advantageous for survival. The rationale for cognitive resources is fundamentally Darwinian. In fact the conception of intelligence as a tool for survival - cognitive Darwinism - is as old as biological Darwinism, for Darwin himself considered the human capacity for reasoning and theorising to be features of biological endowment.[43] Yet any consequent frustration arising from a lack of knowledge need not entail consciousness. Note that its absence is fully compatible with James' further assertion that,

> The utility of this emotional effect of expectation is perfectly obvious; 'natural selection,' in fact, was bound to bring it about sooner or later. It is of the utmost practical importance to an animal that he should have prevision of the qualities of the objects that surround him.[44]

Delving into the expansive philosophical literature pertaining to these final points would lead us too far astray, but the problem of consciousness does turn out to be more than a mere exemplar of the complexity issue above. Later, in the third chapter, it is argued that conscious experience is highly indicative of the nature of process, and of the nature of reality itself. And the phenomenon of evolution is easily shown to bring sentient experience in its train, when the integral relation of process and experience is coupled with a proper model for how novelty and innovation are injected into nature's self-perpetuating scheme of things.

§ The Plight of Purpose

One final feature of cognitive evolutionary thinking is noteworthy. While biological evolution is undoubtedly Darwinian, with *blind* natural selection operating with respect to *purposeless* random mutations, intelligence has fostered an evolution of culture which is generally governed by *rationally guided* selection among *purposefully devised* mutation variance. Of course human cognitive capacities are part of the natural endowment resulting from biological

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42 W. James, *The Principles of Psychology*, Vol.I. London: Macmillan, 1891, pp.148-149.
43 Darwin elaborates on this theme in *The Descent of Man*. NY: A.L. Bunt, 1874.
44 W. James, "The Sentiment of Rationality," *in The Will to Believe and Other Essays in Popular Philosophy*. NY: Longmans Green, 1897, p.78.

selection, but the cognitive methods, standards, and procedures are resources that develop and evolve through rational selection in the process of cultural transmission over successive generations.[45] In place of one's offspring are those that one influences, in place of biological mutation is procedural variation, in place of reproductive elimination from absence of traits passed on to offspring is reproductive elimination via lapses in the conveying of discoveries.

In the cultural domain a rigorously eliminative evolutionary model is untenable because what is at issue is historical survival, based in the main on communal behaviours transmitted through teaching and example. Here the lessons of experience dictate the preferential selections being made, here intelligence and knowledge are the fruits of collective and cumulative endeavours. Although rational selection is basically the same sort of process as natural selection, the former can also effect changes from across genealogical lines as well as within the boundaries of a single generation. But by far the crucial difference is that rational decision *brings in purpose* whereas orthodox Darwinian selection is in a sense a way of removing purpose, explaining its appearance by deploying the natural mechanisms of blind elimination cast in *purpose-free terms.* Darwin and Spencer's own ideas on the topic, and subsequent developments in C.S. Peirce and Konrad Lorenz, try to keep to the biological thesis by contending that the human mind has certain genetically determined innate dispositions evolving because they are conducive to survival. But the suggestions above, advanced by Karl Popper and Stephen Toulmin, and more recently by Anthony O'Hear,[46] represent an alternative vision incorporating a cultural development that involves an evolutionary approach, whereby ideas battle for selection by the adoption and perpetuation in society through a process in which the fittest are likely to prevail.[47] However implausible a rationally purposive approach may be in strictly biological evolution, it is eminently and unproblematically tenable in matters pertaining to the *modus operandi* of intelligent and rational beings.

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[45] Most commentators argue that cultural evolution is not merely analogous to biological evolution, but rather that both are variant forms of one structurally uniform process. See R.Byrd and P.J. Richardson, *Culture and the Evolutionary Process.* Chicago: Univ. Press, 1985.

[46] A. O'Hear delivered his forthcoming, "Knowledge from an Evolutionary Standpoint" at Edinburgh University, 1995.

[47] Not to be confused with the blind purposeless memes discussed in, R. Dawkins, *The Selfish Gene.* London: Paladin, 1978.

It might be added, incidentally, that the commonplace (post-Spencerian) philosophical inference of regarding that which appears to be purposive, even in the scaled-down biological thesis, as merely a 'cosmic accident' cast in purpose-free terms, hinges on accepting 'random' to mean 'determined by chance among a large number of equally probable possibilities'. The scientifically analysed constraints pressing in on randomness are much more stringent than is usually assumed, and no logical entailment points out the manner of interpreting *the meaning* of these internal constraints operating on chance. The scientific facts allow an interpretative range extending from purposive life and intentional minds as cosmic accidents to cosmic imperatives, something often overlooked by proponents of less purposive biological interpretations.

At any rate, acknowledging a purposive *cultural* evolution of this sort (an essentially Lamarckian story) ensuing upon a purposeless biological evolutionary development of intelligent beings (an essentially Darwinian story) does not in itself address the issue of how or why consciousness evolved. But it does advance the generalised evolutionary perspective to some degree by embracing and resolving related and problematic aspects of life and mind. Additionally, it helps extend the applicability of evolution theory by introducing another line of investigation to pursue for resolving the anomaly of complexity that arises with the limited biological doctrine. As noted above, although changes can issue in decay as much as development, degeneration as much as growth, the macro-processes characterised as Darwinian evolution are typically envisioned as a course of temporal *development.* Thus something akin to value (conceived in the abstract) tends to facilitate survival, so that the complex arrangements which do establish and perpetuate themselves manage in general because they represent actual improvements of some kind. As we shall see, these notions of abstract value and improvement, often left undefined or simply rejected by the more eliminative theorists, set off one group of non-substantive thinkers apart as their decidedly optimistic, philosophic counterparts. Likewise it separates them from other evolution-inspired philosophers whose views deny progress and tend to be pessimistic. (Consider for example Nietzsche and his doctrine of eternal recurrence.) Purposive cultural evolution offers an account of at least one side of that increasing complexity, namely the cultural features that pervade reality and often go unnoticed.

To be sure, as pervasive and neglected as they are, an account of developing cultural features hardly explains the far-reaching presence of all complexity

throughout the natural world. Yet, in a world that increasingly comes under evolutionary description, doctrines that help to complete a set of insights already so vast and applicable should be in the foreground of investigation. Evolutionary thinking highlights the dynamic character of reality, and proceeds to show how utterly expansive it is. It is shown largely to neglect the ontological issues that impinge on the problem of process conceived from a substantive orientation. And it is then shown to operate in the clearly purposive cultural realm of conscious experience. We end the present analysis of evolution with the suggestion - and merely a suggestion at this juncture - that in putting the pieces of the puzzle as presented together with an adequate account of process and conscious experience, we may begin to get the picture.

> But then arises the doubt: can the mind of man, which has, as I fully believe, been developed from a mind as low as that possessed by the lowest animals, be trusted when it draws such grand conclusions?[48]

PART FOUR
The Rebirth of Becoming

We opened this chapter by noting how the Buddha in the East and Heraclitus in the West taught that change was the fundamental nature of reality. Having marked the repeated failures of various ontologies of being throughout the subsequent history of ideas to accommodate the reality of process, it is now time to ask whether ontologies based on becoming, that is on the changes between beings, can better accommodate the existence of process and still provide an adequate account of being. Since we appear to live in a world populated by both things and events, common sense dictates that we ought not relinquish the reality of either in developing an adequate and accurate ontological model. Yet if a substance orientation is unable to explain the reality of process, we can turn to a process outlook and attempt to explain the reality (or apparent reality) of substances.

We also noted in opening this chapter that certain practical aspects of living prohibit complete adherence to an absolute doctrine of flux. Some may find the Buddha and Heraclitus intriguing, but none can do away with the substance-property, thing-event, subject-predicate character pervasive in our interpretations and articulations of experience and still get along in the world. At any rate, qualification is in order regarding the phrase 'an absolute doctrine of

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[48] C. Darwin, *Notebooks, 1836-1844: Geology, Transmutation of Species, Metaphysical Enquiries*, P.H. Barrett, *et al* eds. Ithaca, NY: Cornell University Press, 1987, p.539.

flux' as depicting the viewpoints of both Heraclitus and the Buddha. As to the latter, there is some ambiguity in the teachings as to whether achieving a complete understanding of universal impermanence ultimately leads to a transcendent realm beyond impermanent process (and therefore unchanging) or to complete annihilation of all being and becoming whatsoever; while the former spoke of 'the logos' as the final truth or law dictating the changing nature of all things, a law that, like the universal *dhamma* of the buddhists, presumably abides through the changing flux. So if substantive philosophy seems extreme in its neglect of process, a counter proposal that neglects endurance is equally extreme in an opposite direction. After all, whatever aspect of living one chooses to consider already implies a degree of endurance, because an abiding adherent is presupposed as the would-be follower of the flux doctrine. The speculative proposal that is called for then is one that can follow a middle way between the two, and one such proposal is to begin with *experience* and attempt to derive from experience both an account of change and an account of endurance.

§ Beginning with Experience

If we begin with our experience of the world rather than with the formal requirements of the logic and the natural language used to interpret the world, we find that we never actually experience substances. Experience consists of durations or transitions in time that involve changes of properties; that is, what we actually experience is simply a flow of activity or the passing of nature, an idea signified by William James' notion of the 'stream of consciousness' or Henri Bergson's 'inner duration'. The flow may be of uncertain and fragmentary experience as in the confused combination of dream oblivion and partially subconscious sensory input encountered upon waking from a deep sleep in the early morning, or it may be of certain and complete experience as in the stirring, fully conscious sensory input endured in a cold shower on a hot afternoon. Experience may be dominated by perceptions of either sharp or dull calibre on the one hand, or it may be dominated by memories, either distant and vague or recent and piercing on the other. But in every case, of no matter what variety or combination, experience comes to us in the form of a flow. If we probe it in depth we discover that we live through experiential events consisting of processes of transition, of later experience continually superseding earlier, in a thoroughly dynamic breadth of ceaselessly changing qualities.

Here we may have a clue. Of the many theorists we have examined all presented accounts of process that were based unsatisfactorily on the superseding

of one state of substantial being by another. If experience as lived through partially fits that description in that experiences do supersede one another, then retaining that element of an account of process seems reasonable. Now replacing the superseding *substantial* being element of those accounts with a superseding *experiential* event element becomes a viable alternative. Could the flowing, durational quality of experience be a candidate for what the world is actually like in its essence? Even to begin to formulate a response to this rather broad, overarching suggestion requires a good deal of metaphysical reasoning, many aspects of which will occupy us in the third and fourth chapters to come. Indeed reality as so conceived is the fundamental insight of process philosophy as espoused by Alfred North Whitehead and Charles Hartshorne, and it represents a radical departure from substantive philosophy in this century. As Whitehead notes, "In place of the Aristotelian notion of the procession of forms, [an event framework] has substituted the notion of the forms of process."[49] Demonstrating the meaning and importance and application of that insight represents one of the principal purposes of the present work in its entirety. Therefore, although at present we are focusing on the more modest suggestion of taking experiential events as a plausible alternative to substance in developing an adequate account of process, we cannot help but sketch some aspects of a metaphysical position in broad outline in doing so along the way.

For instance, from the temporal character that we intuit in every experiential event, we can deduce a necessary component of *difference*, for if an intuition of difference were not presupposed we would not experience temporally unfolding differences. And we can confidently extend this epistemological point to a metaphysical one: a world without temporally unfolding differences would for all purposes be a world which stood absolutely still, and so would be no world, or at least no knowable one. But we do know a world, however imperfectly, and we know it through our experiential events, a key factor of which is their changing nature or process flow. Our experiential intuitions therefore provide ontological suggestions along with epistemological ones, and invoke questions of what sort of differences there are, and of differences between what sort of entities. Let us leave the suggested metaphysical models aside for the time being and turn to these later questions.

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[49] A.N. Whitehead, *Modes of Thought.* NY: Free Press, 1968, p.192.

Since our intuition of difference is a direct result of the ongoing nature of events, we may start by viewing events as the basic particulars of the world, sequences of which form the temporal process as experienced. In order to substitute events for substances as the basis for being, we must break substances down into their constituent parts to see that just as an individual is more determinate than the species to which it belongs, so also is the event more determinate than the individual. Hartshorne has suggested that,

> The logic which drives us from genus to species to individual is the very logic which should drive us still further, to the event, or momentary state, of the individual process in question.[50]

We commonly consider a thing or a person on one occasion as being the very same as on another. But this sameness is never literally true: we never encounter an absolute identity between two entities experienced over time. Physics speaks of the ceaseless dance of subatomic activity in things and psychology records the countless influences forever impinging on personal identity; yet we have little difficulty noting the changes undergone by such *apparently* enduring individuals and we may refer with little or no effort to these individuals as 'the same' for practical purposes. This is because, perhaps unwittingly, we are able to construct the various levels of being out of the becomings of events as our basic particulars, in the manner by which events are united in sequences by their more special or general characteristics. Individuals can be defined consistently in terms of certain dominant characteristics or recognised sameness of pattern that is passed through event sequences. We need not postulate anything that stands in as the wholly same individual over time, because all the being required for ordinary identification purposes is available in the unique lines of inheritance obtaining in series of events. Hartshorne adds that,

> the most analytically complete way of speaking is event-speaking, not thing- or substance-speaking. The latter is a simplification or shorthand.[51]

Indeed, if it were not for certain recurrent features of process, identification and re-identification would be impossible. It is a dominance of inherited characteristics in the unending procession of events that is recognised. The elements of experience are not the basic particulars however, these experiential elements are rather the ingredients, the 'whats' of the events. They provide structure to the sequences, but the events themselves provide the grounds for

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[50] C. Hartshorne, *Creative Synthesis and Philosophic Method.* IL: Open Court, 1970, pp.174-75. Note that this outlook points toward the generalised evolutionary scenario discussed earlier.
[51] C. Hartshorne, *Creative Synthesis and Philosophic Method.* IL: Open Court, 1970, p.175.

their being. Whitehead draws the conclusion, "Thus nature is a structure of evolving processes. The reality is the process. ...The realities of nature are the events in nature," from which it follows that, "Biology is the study of the larger organisms, whereas physics is the study of the smaller organisms."[52]

One objection that warrants mention here concerns the fact that thus far the focus has been on the perceptions that are being made. To consider, to note, to recognise, or to identify already implies a degree of endurance. Whether the activities finally unearth momentary events, sequences of events, or something substantial, an enduring observer is presupposed in all such cases. For nature to be a 'structure of evolving processes' the observer too must be shown to be of that same nature. To meet this objection the process philosopher relies on an analysis of relations based specifically on temporal features that relate experienced entities internally at one end and externally at the other. The objection is addressed in some detail in subsequent discussion, but in brief the idea is that the present state of a perceiver, a percipient event if you will, is all there is ontologically, though that present percipient event is informed by its internal relations to a particular past experiential sequence, and that relation makes the present event capable of the kind of perceptions outlined above.

One final word on the priority of events is in order. Although science could never hope to prove the truth of a metaphysical position, it can and often does expose the falsity of a poor one, and we would expect it to offer growing support for more feasible accounts. It seems that conceiving events as the basic particulars is more compatible with relativity physics than previous substantive positions have been. Because the elements of experience merely provide structure to the more fundamental events themselves, as in relativity theory, "space and time are merely ways of expressing certain truths about the relations between events."[53] As Whitehead makes this distinct feature of his ideas plain,

> My own view is a belief in the relational theory both of space and time, and of disbelief in the current form of the relational theory of space which exhibits bits of matter as the relata for spatial relations. The true relata are events.[54]

From this standpoint things are not basic particulars embedded in a framework of spatial and temporal relations; they are constructs of event particulars that, in

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[52] A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, pp.72, 239.
[53] A.N. Whitehead, *Concept of Nature.* Cambridge: Univ. Press, 1920, p.168.
[54] A.N. Whitehead, *Concept of Nature.* Cambridge: Univ. Press, 1920, p.24.

becoming, create their own fragments of space and time. By coming to be, each event carries with it its own definite quantum of extended space-time, which discloses a unique causal background from which it came. "You may observe another event of analogous character, but the actual chunk of the life of nature is inseparable from its unique occurrence."[55] We shall return to the unique quality of events in subsequent chapters, in the main to take up Whitehead's proposal above that physics, like biology, merely studies smaller organisms. But here the point is raised not only to mark an event perspective's common ground with relativity theory, but also to highlight what we have seen to be a recalcitrant problem in substantive methods for solving the problem of process. The wrong idea has been taken up, time and again, as the unit of reality's measure. Philosophers need not deny that substances exist so much as simply reconceptualise them as manifolds of process, as stabilities obtaining in the dynamic activity that pervades all reality. In a way Heraclitus can be understood as saying only half the truth: we do not step twice into the same waters, while we do step twice into the same river.

§ Basic Instinct and Final Analysis

Thus for all that has been argued, the bottom line between the conflicting approaches of substance and process metaphysics cannot be resolved decisively through theoretical argument alone. Like many philosophical disputes, there is small chance of settling things once and for all by 'knock-down, drag-out' argumentation. Our basic instincts will not simply disappear for conceptual convenience, and we basically conceive a world populated by many 'things'. In essence the taking up of processes as more fundamental than substance is not so much the propounding of a theory as it is an urging of a point of view, not a doctrine but an approach. We can and have outlined certain theoretical advantages, and we do well to stress the basic insight of viewing substantial things as subordinate to processes both ontologically (in the order of being) and conceptually (in the order of understanding). In a world of change the supposed predominance and permanence of 'things' in nature is but a fiction, useful at times and delusory at others.

Other advantages that follow on from this main insight include the possibility of a cogent account of things from a process viewpoint. Again, the process metaphysician need not dispense with the notion of 'things', it would in fact be

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[55] A.N. Whitehead, *Concept of Nature*. Cambridge: Univ. Press, 1920, p.169.

all but impossible to articulate the alternative viewpoint without using the idea. The question is not over concepts as such but rather over their significance. Another advantage is the consistency and constancy derived from a process perspective with the views of nature articulated in contemporary physical science (as evident in dynamic subatomic discoveries), in biological science (as evident in Darwinian evolution), and in social science (as evident in cultural evolution). Finally, a focus on reality's processes, activities, events, and occurrences - in a word, on change in all its worldly manifestations - allows us to appreciate that our experience, and our consequent understanding is of a similar structure, that the world around us is not a foreign and frozen museum, but like life as lived, a vibrant and lively flow.

So ends our discussion of becoming and being, having established the priority of the former as providing the groundwork for the latter, in this the first of our two preliminary discussions to a metaphysics of experience. We shall endeavour to apply these and related insights presently in the analysis of empirical experience and rational reflection, and subjectivity and objectivity to come.

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Psychical Ponderings

"You may polish up common sense, you may contradict it in detail,
you may surprise it. But ultimately your whole task is to satisfy it."

PART ONE
The Components of Knowing

In what has come to pass we set out to establish an alternative analysis of being, achieved by way of its complement of becoming, in response to the problem of process. In what is now to come we set out to establish an alternative analysis of objectivity, achieved by way of its analogous complement of subjectivity, in response to the problem of knowledge. The concept of complements is examined as it arises in the workings of the empirical and rational components of knowing, and the importance of psychical subjectivity is then clarified and the way it complements physical objectivity is outlined. As an emphasis on process was warranted due to the marked bias in favour of things, an emphasis on the rational and on the subjective is suggested to counteract similar biases on the empirical and the objective. Our metaphysical preliminaries close with an introduction to the coherent and comprehensive vision of reality the process thinker pursues in adopting these reformed notions of becoming and subjectivity.

Whitehead was one philosopher acutely aware of the concept of complementarity. He was sharply critical of mistaken attempts by early thoroughgoing rationalists such as Leibniz to subsume sensory experience under concepts of the understanding, and similarly mistaken attempts by later thoroughgoing empiricists such as Hume to construe concepts of the understanding solely on the model of sensory experience. Whitehead's system represents a unique departure from the one-sided stress of piecemeal empirical projects in contemporary thought under the influence of Hume, and a return toward rationalist doctrines, albeit revised by empirical input. Though the

emergence and creativity of contingent particulars are in sharp focus, they are located within an elaborate rational model guided by universal necessities. Ultimately, understanding comes from insights into the interplay between them. Whitehead noted an important and neglected semblance in social structuring of the conceptual pairs rational and empirical, universal and particular, necessity and contingency, but also of substance and change, atomicity and continuity, the potential and the actual. In all these cases each side depends on the other in a complementary relation to reach a coherent completion, a point examined in the rational-empirical interplay example below.

One of Whitehead's fundamental insights was to see that by developing the notion of process, an overarching descriptive generalisation emerges adequate to all six of these pairs. Process is acknowledged as the supremely pervasive Heraclitean trait in all existence. But again, Whitehead also saw that there is something more to reality that complements the flux: the enduring forms of potential that are present in every instantiated process, and that render process relatively concrete compared to the complementary realm of abstract potential that it evokes. Throughout reality then, there is a complementary conceptual interplay pervading the Heraclitean flux. Whitehead's other fundamental insight concerns a seventh such complementary pairing, namely the psychical subjective and the physical objective, and how by inverting the commonly held supposition that the objective world is the more substantial and real, and by viewing them both as complementary concepts, Whitehead placed the changing nature of experience in the centre of investigation, from which he derived and to which in turn he applied his elaborate analysis of process.

§ Empirical Experience over Rational Reflection

But prior to delving into how the subjective and objective complements circumscribe process, it is profitable to ponder the complementary pairing of empirical experience and rational reflection. In the first place, the question of how these particular paired concepts relate represents an area of ongoing and influential debate, one bearing directly on any philosopher's take on the notion of knowledge, a problem as perennial as the problem of change. In philosophical circles it has been cast as any number of questions: What is knowledge? Is knowledge possible? How do we know? What is the relation of knowledge to the world? To beliefs about the world? To truth, to wisdom, to God? But central to most forms of the problem is this age-old distinction between the empirical and the rational, and the consequences drawn therein for the relation of particulars

to universals. These distinctions often separate otherwise like-minded philosophers into disparate groups bound by an allegiance to one or the other orientation, and to the varied influences that play upon the development of other paired and complementary concepts. A reliance on either empirical or rational grounds likewise results in a certain metaphysical furnishing of the universe, and those furnishings are no small part of a comprehensive rendition of reality. In the second place, it is fitting to unravel the concept of complements by probing a problem along the lines of empirical and rational ebb and flow because, as already mentioned, process philosophy is in fact *empirical rationalist* in essence. It places great emphasis on subjective experience and relies on the findings of empirical science, while it likewise holds to rationalist criteria of coherence and consistency for all parts of a vast metaphysical model initially derived from a small number of (somewhat) axiomatic principles.

Thus it is well to look carefully at what is at issue in either persuasion in pursuing an alternative set of metaphysical preliminaries, but a qualification at the outset is in order. The philosophical literature pertaining to the development of these conceptual pairs is vast to be sure, and the following treatment by no means attempts anything approaching an exhaustive survey.[1] In truth, under the rubric of 'thoroughgoing empiricist' and 'thoroughgoing rationalist' something of a caricature is allowed in simply associating rational with universal, empirical with particular. This is done by way of brevity and the better to avoid any unfair renderings of particular philosophers' views. Even so, a certain intuitive pull is thereby acknowledged and addressed, the modest end of outlining the way complementary concepts typically fit together is thereby achieved, and the subsequent setting up of a worthwhile analogy to subjectivity is thereby begun.

The thoroughgoing empiricist pictures the world as composed exclusively of particulars. It is merely an aggregate or assemblage of facts which simply happen to be what they are, following contingent laws of co-existence with one another in which all the relations governing them are reducible to contingent propositions. Universals are finally reducible to sets of resembling particular sensory experiences, any necessary judgements reducible to contingent ones, necessity itself reducible to contingency as no intrinsic necessity, neither causal

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[1] Nor am I professing to have formulated my own views satisfactorily. If we hereby tend toward *the philosopher's folly* of delving less and less into more and more until seeming to know nothing about everything, rest assured we stand clear of *the scientist's folly* of delving more and more into less and less until seeming to know everything about nothing.

nor logical, obtains in the relations and sequences of entities in existence. On this view all knowledge is derived from empirical experience.

The thoroughgoing rationalist on the other hand contends that the world is made up solely of universals, that the seeming assemblage of contingent facts, supposedly derived entirely from particular sensory experiences according to the empiricist, is but a complex of universals, in an ideal world in which universals are not only real but are in fact the only reality. In such a world all the relations that govern such universals, though they may appear to be contingent, are finally reducible to necessary propositions. Likewise all the alleged particulars involved in sensory experience are reducible to universals, contingent judgements reducible to necessary ones, all contingency finally reducible to necessity. On this view all knowledge is derived at least in principle from rational understanding alone. In drawing the distinction, incidentally, Francis Bacon once observed that empiricists are like ants in that they collect and put to use while rationalists are like spiders spinning threads out of themselves.

To begin with the argument from inadequacy. The empiricist may challenge the rationalist outlook on grounds of inadequacy, because a world in which all particulars are made up solely of bundles of universals does not seem to provide a rich enough picture of reality. To view a particular river for instance as nothing but a complex of universals would fail to locate that river in space and time, would fail to provide the particular territory the universalising map allegedly covers. Arguably the one factor that distinguishes particulars from universals is spatio-temporal position and the (largely causal) implications thereby entailed. For while the rationalist is right to insist that other candidates for particularity may just as easily be classed as universals, albeit rare ones in some cases (the unique shape say of an especially unusual river being but the one instantiation of that very specific yet universal shape), the empiricist rightly insists that position in space and time differentiates any particular river from all its attendant universals, by endowing it with the capacity to interact with the world outside of itself and to change accordingly. For the empiricist sees the world of particulars as a dynamic system that stands in sharp contrast to the vast enveloping realm of changeless ideals and eternal necessary truths, should any such exist at all.

The empiricist may add that existence as defined along space-time lines is not simply another quality, one that when added to the many other qualities of a

possible object, render it actual. The inclination is rather to suggest that existence consists in an object's spatio-temporal interactions with the totality of other existent objects. So that no universal could, by definition, be appropriately applied to the object as one among many in a complex of universals, for those particular relations are not in any straightforward way *qualities of the object* at all. The difference between the Muddy Mississippi and the River Styx need not turn up in a list of their qualities, because the ideal Styx can be conceived as carrying all the same sort of mud as the real Miss. The differences that do turn up however are relational or extrinsic, not qualitative or intrinsic. The actual Mississippi may take one down to New Orleans by raft or drown one enroute, while the imaginary Styx no matter how vivid the imagining could not.

Whitehead, a thinker whose work defies classification as either principally empiricist or rationalist,[2] has pointed out that our primary ground for judging dreams and fictions non-existent is not their internal inconsistency or fantasy quality, but rather their inability to fit into the space and time of the larger totality of what does exist in waking reality.[3] The study, however involved, of a perceived object's *internal* nature never reveals whether it really exists. In themselves illusions may seem as real as any true perceptions, but ascertaining an object's external relations establishes its interactions with the surrounding totality (or as much of it required to make a confident judgement) and a genuine position in the space-time system of reality. While a universal by being an ideal object only influences the mind of whoever is doing the thinking, particulars by being actually existent objects influence not only the mind conscious of them but all other things as well.

The thoroughgoing rationalist may reject the distinction based on space-time location, by claiming that it merely underscores the point that experience may sometimes lead us astray. First, it appears the argument assumes that various complexes of universals pervade the world of particular existence. If so, then the fact that such universals transcend that world of particular existence only highlights the point that empirical knowledge is incomplete. Therefore it is unwise to rely on distinctions made on the basis of degrees of perceived interactions between objects. For using spatio-temporal criteria to distinguish particularity from universality, would mean allowing the less definite (or at least

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[2] Prior to Harvard, Whitehead sharpened both rationalist and empiricist sensibilities as a mathematician and theoretical scientist at Cambridge and London respectively.

[3] This issue is discussed at length in A.N. Whitehead's, "Uniformity and Contingency," in *Essays in Science and Philosophy.* London: Rider, 1948, pp.100-111.

incomplete) to discern and define the more definite. Since the rationalist contends that the world of concrete particulars is itself a part of the ideal world of universals, the blundering through distinctions based on inadequate knowledge sources is in large part irrelevant to the rationalist necessary model of reality.

Second, even accepting the distinction, it would appear that the rationalist has recourse to the same logical point that the empiricist relies upon. Existence, that is, may be defined along space-time lines, and all interaction and consequent change explained in terms of that existence, and yet arguably this only outlines first and second order necessities that obtain in a world fashioned from various complexes of universals. Just as the empiricist establishes a separate realm of particulars stipulatively, by definition, the rationalist can claim in like manner to be establishing the very same separation between levels of universal realms.

As to the first counter, one can accept the limitations of empirical knowledge as grounds for questioning the certainty of the distinctions, while rejecting the proposed outcome of those limitations. Since for the empiricist universals are finally reducible to sets of resembling particular sensory experiences, and vice versa for the rationalist, the negative point regarding knowledge does not seem to support either side as against the other. The only justifiable conclusion is that either model must make do with imperfect knowledge. Moreover, although the empiricist assumes pervading universals, this need not imply their transcendence. The empiricist account as put forth thus far does not call for either the reliance on a transcendental element of properties or on the element of certainty presupposed in the rationalist critique.

As to the second counter, it is illegitimate to suggest that establishing particularity by designation in space and time is analogous to establishing a second, say more down-to-earth, set of universals. It is true that the logical point may work either way, but also true that whatever an entity in space-time is labelled is incidental. The important point, and one favouring the empiricist view, is that if we allow this secondary realm of universals, then the concept of a particular does not seem to make sense. The rationalist must somehow construe those worldly items claimed reducible to complexes of universals, and if not by space-time designation, by what then? For if universals by definition can likewise undergo interactions with the world, influencing and being influenced by other such universals, then their characterisation as universal seems merely verbal.

These are in fact the *particular* items in the world involved in *particular* changes, and undergoing a complementary interplay with the universals beyond them. So the rationalist account seems inadequate in its dismissal of particular spatio-temporal changes, and insignificant in its merely verbal departure from the empiricist point of view. The presence of a complementary relation between the two realms.

To turn now to the argument from the nature of relations. The nature of space-time designation provides another counter to the rationalist view. Examining the conjunction of universal traits in existent entities often reveals diverse and ambiguous relations between them. No entailment holds of colour from shape, of size from texture, of length from breadth, and so on. Bicycles, barndoors, and beaches vary in these properties quite independently. Typically it is only those entities construed *analytically* to possess such traits in specified combination, such as the black-and-beaked quality partly defining a raven, that do not vary universal properties contingently, and of course the way the world is carved up conceptually is likewise a contingent matter. That is to say many, if not most, universals do not determine nor preclude the presence of their accompaniments. Furthermore, many of the propositions derived from and used in support of a rationalist ideal of the world as a completely necessary system that we but partly discern, are not reversible. The necessities are asymmetric, working only in one direction. Every child (excepting Adam and Eve) necessarily has or has had a grandfather but need not in turn ever be one, triangles necessarily have three angles but a figure with three angles need not be triangular. Now if these relations do not demonstrate any fixed entailments or any fully symmetrical necessities, it seems apparent that in the domain of space and time we are far from attaining a necessary rationalist ideal.

The rationalist may argue that a failure to see any such necessary relations is due to a present state of ignorance. But the failure to meet the rationalist ideal is not the outcome of a lack of knowledge. The points arise precisely from the actual understanding of diverse and ambiguous relations between many universals. It is just the case that not every abstract quality stands in a determinate or necessary relation to every other, at least as regards the manner in which they co-inhere in an event or thing in space and time. To encompass a plurality of ultimately independent variables, the rationalist would have to supplement the ordinary logic of analysis with a synthetic logic based on some overarching principle, as in Hegel's logic, in the hope of disclosing hidden

entailments of *seemingly* independent variables. But success at putting forth any such attempts must be measured in terms of how convincing the rationalist alternative appears, as against overwhelming experiential evidence to the contrary. No universally accepted alternative accounts readily come to mind.

The empiricist may extend the argument by considering even those relations involving universals that are obviously associated with necessity. For insofar as any such relations apply to existence, they are obviously hypothetical because the entities involved need not have existed. Even when not applied to existence, they are indirectly hypothetical, in that they depend upon certain stipulated and thus revisable notions. No judgements regarding either particulars or universals imply the existence of their terms. We may stipulate that birds are creatures that can fly, and judge an animal to be one according to this ability. But whether all birds or even any particular bird actually exists and flies remains an open question. And since existence on most views is not necessary but contingent, the empiricist may insist on the hypothetical character of all so-called necessary truths. But despite that such truths are expressible in terms of hypothetical propositions involving existence, every such proposition derives its truth from a categorical or unconditional proposition involving universals. If the complex of universals referred to by 'bird' did not imply the quality of being a member of the animal kingdom, there would be no truth that if a bird exists, that bird is an animal. To say that adding one apple to another results in two apples presupposes the proposition '1 + 1 = 2'. So the contingency of existence does not prove that necessary relations between universals are merely contingent.

The empiricist may try to salvage the point by applying it to the necessary and universal categorical propositions themselves, by bringing into focus certain aspects of pure rational mathematics. In the present century, empiricists have generally focused on contingency as found in empirical truths, and have tended to treat necessity as confined to mathematical and logical truths. But taking mathematics as an exemplar of purely rational endeavour may appear to limit the scope of investigation unnecessarily, for there have been many attempts to ground rational understanding elsewhere. Teleological principles such as 'the Good' in Plato or 'Spiritual Perfection' in Spinoza, or in dialectical principles such as 'the Logic' in Hegel seem quite distinct from the numerical rational systems of either Pythagoras or Euclid. However the empiricist critique as presented seems to hold with little revision for teleological and dialectical outlooks as well. Clearly Plato and Spinoza were influenced by mathematical

ideals, and their work may be similarly challenged from those standpoints. One can also challenge Hegel's uniting of everything into one vast system, with a spirit of paradox animating every conceivable aspect of existence and experience, for the lack of mathematical precision in the dialectical method upon which the logic depends, especially when considering ideas and qualities that do not appear to be at extremes in any straightforward way.[4] At any rate, in the past mathematicians regarded the principles upon which geometry and algebra were founded as objectively true and self-evident laws of nature. Nowadays they commonly see their field as a science of necessary truth, possessing a validity independent of the existence of any of the objects involved, and believe that it has no categorical say about what actually exists. Mathematics can point out *what does not exist*, say for instance an odd multiple of two, but not *what does exist*, say an odd number of twins struggling through their math lessons. Axioms are simply postulated rules in a mathematical game instead of ultimate truths to which existence must conform. Hence the empiricist can insist that since rules are made, unmade, and changed according to the gamesmanship of the players, mathematical validity depends on hypothetical or contingent acceptance of postulates which in themselves have no truth value beyond the game.

Here the rationalist has recourse to the same counter regarding the contingency of existence above, but a glance at how mathematics has evolved displays the full weight of the application. Intuition grants a degree of pre-philosophical validity to Euclidean Geometry and to Pythagorean Algebra, in that a good deal of the workings of reality seem to abide by these structures: the space of our experience matches Euclidean spatial description, the properties of our numbers follow Pythagorean algebraic formulas. But when Lobatchewsky and Riemann developed alternative yet self-consistent forms of geometry, and when Hamilton and Boole, amongst others, likewise developed alternative self-consistent algebras, limitless developmental possibilities were recognised on the one hand, and on the other the *relative* pragmatism, rather than absolute truth, that underlies the age-old practice of employing Euclidean and Pythagorean frameworks.[5] In geometry the new point of view came about with the failed attempts to deduce from Euclid's other axioms the truth that through any point only one parallel to a given separate line can be drawn. In analysing the failure

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[4] No dialectical opposition readily arises, though required by Hegelian rational principles, for ideas like those of apple cart or computer, or for qualities such as lukewarm or grey.

[5] The significant possibilities are discussed in A.N. Whitehead's, "Mathematics," in *Essays in Science and Philosophy.* London: Rider, 1948, pp.195-208.

two new and perfectly consistent geometries were developed that did not assume the axiom of parallels, the Lobatchewskian substituting an infinite number of parallels and the Riemannian substituting not even one such parallel, to a given line through a given point. The advent in algebra of imaginative and thoroughly developed ideal constructions that deviate from standard numerical system operations ushered in the new perspective. For the familiar $(A \times B) = (B \times A)$ for example, Hamilton managed to substitute the peculiar $(A \times B) = -(B \times A)$ in a self-consistent system of theorems, and Boole by substituting $A \times A = A$ for the familiar $A \times A = A^2$ did the same.[6]

In opening new ways for the evolution of mathematical thought, these counter-intuitive developments naturally led to the divestment of hampering and irrelevant references to existence.[7] But even in these imaginative departures from mathematical allegiance to reality as experienced, the presupposition of a *categorical* necessity remains. For the hypothetical proposition 'if certain propositions are taken as axioms, certain other propositions follow necessarily as theorems' presupposes the categorical proposition 'together these axioms necessarily imply these theorems'. And this truth is objective and valid regardless of whether the particular axioms are selected. Mathematicians are not in fact free to create systems of algebra and geometry but merely free to *select* them, because apprehending the consequences of putting axioms together does not constitute the making of a new truth. In like manner, attending to one attribute of a perceived object, thinking of it in isolation, abstracted from its embodiment in existence, does not create a universal but merely happens upon one already there. The truths regarding universals are no more created than those involving particulars; in both instances they are found, albeit typically in large part by the senses with the latter, and in large part by the intellect with the former. Non-Euclidean and Non-Pythagorean mathematical systems are simply among the many systems of implication in a realm of universals that is in no sense arbitrary or indeterminate or even flexible. Though existences can be both created and discovered, the rationalist is right in pointing out that their meanings and that upon which they subsist can only be discovered.

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[6] For summaries of these developments see D.J. Struik, *A Concise History of Mathematics*. NY: Dover, 1962, pp.139-82; for these specified theorists consult chapters on each in E.T. Bell, *Men of Mathematics*. NY: Simon and Schuster, 1937.

[7] That is 'counter-intuitive' only in as much as one assumes an earlier perspective based on relations to existence. From that standpoint one of course cannot imagine an infinite number of parallels traversing the same point, nor 1 x 2 as not equivalent to 2 x 1.

It is true nonetheless that the possibility of alternative mathematical systems does confirm the empiricist plurality of independent variables even in the realm of abstract universals. Note for instance that different and mutually inconsistent systems can share certain axioms, thus demonstrating the independence and non-implicative contingency of those axioms. Even so, this only goes to show that the necessity that obtains in mathematical systems is not horizontal so to speak but only vertical: it holds between the entire group of axioms and the theorems deduced from the group, not between the axioms themselves or between any one axiom and the theorems derived from the whole group of axioms. Just as a complex of universals cannot imply its exemplification in the world of existence in space and time, any one axiom standing alone cannot imply a theorem. Nevertheless, it is plain that an interplay of rational and empirical components takes place both in concepts that indicate existences and in those referring to mathematical and logical reasoning.

§ Rational Reflection over Empirical Experience

Just as a thoroughgoing empiricist world consisting solely of particulars in the last analysis needs some degree of backing from universals, a thoroughgoing rationalist world made up exclusively of universals requires some support from particulars. Traditionally, metaphysicians have separated universals into two categories. Universals referring to the manifest image encompass those which interact with conscious beings, such as in the qualities of all sensory input; whereas universals referring to what is commonly called the scientific image encompass those universal patterns of interaction between existences themselves 'in the world anyway' independent of consciousness. The rival theories of universals vary widely, from entirely mind-independent realist notions (either substantial or causal), through compromise conceptualist measures of universals generated by mind-world interaction, to entirely mind-dependent conventionalist views (either nominalist or resemblance). The rationalist scenario collapses if both scientific and manifest image universals are shown to work in the same manner. For clearly both conceptualist and conventionalist frameworks, by bringing in a degree of mind-dependency, fix spatial and temporal designations, and in so doing assume a level of particularity in interaction with universals, the very interplay made plain above. What arguments might the rationalist put forward then for a world consisting solely of unattached universals as it were, of the scientific image variety?

First, the rationalist has little trouble in establishing the fact of universals by two related arguments, one involving meaning in universal reference, and one involving logical priority. Analysing the meaningful use of language indicates that there is an implied and presupposed consideration of universals involved. When we ask if something exists, say a collection of a poet's love letters, we designate a certain complex of qualities that has an ontological status in and for itself. Those collected letters may not exist: characteristically passionate, confessional, endearing qualities may nowhere be exemplified in the poet's correspondence. But the mere fact that the complex is a possibility, one from which the meaningfulness of the question obtains, shows the interplay of (at least manifest image) universals with particulars, whatever the answer to the question may be. Furthermore, in any given particular there is a complex of qualities and a spatio-temporal location which constitutes its connotation and denotation respectively. These are parts that together become the whole that is that particular, and parts are prior to the whole which they constitute. In describing one particular planet we may mention the elipticality of its orbit, the ruggedness of its surface, its roundness, its colour, and so on. But that planet could not have these qualities unless they were there to be had. The actuality of something presupposes its possibility, its existence assumes its essence, and this holds for the manifest and the scientific image alike.

To ward off an immediate objection open to the empiricist, that of unnecessarily populating the world with a veritable jungle of universals, a qualification must be made. Universal qualities, as used in reference and as coming as prior, do not commit the rationalist to the existence of another sort of particular. There need not be a realm of abstract universal qualities and disembodied possibilities haunting the world like spirits, out of our perceptual reach but grasped perhaps as particulars by extraordinarily endowed minds, by disembodied souls, the gods, the absolute, or what have you. To be independent of specific exemplifications need not imply any such thing. The suggestion is rather that every particular participates in or exemplifies a universal, not that every universal is exemplified in a given particular. The rationalist merely denies that a lack of particular exemplification implies the non-existence of universals.

Yet it is not the case that universals are then utterly mind-dependent, existing merely in the conscious minds of those attending to them, and incapable of any meaning or reality apart from their detected universal status in consciousness. Placing the logically prior part of a particular whole in the mind explains

nothing. For the universal aspects present in particular objects could not be conceived unless they were there to be conceived. As sketched in terms of mathematics above, the mind does not create but rather discovers universals through discriminative attending or through abstraction. If the mathematical analysis is cogent, universals relating to the scientific image do not reduce to those of the manifest image, but rather the opposite is the case. Moreover, it is inconceivable to suppose that universals could be real only in the mind, while the particulars that possess them as attributes were really out there in the world. A warm furry object could not be objectively real if the attributes of warmth and furriness were merely subjective. The only way of taking up the idea that universals are mind-dependent is to contend that the existent particulars that possess them are likewise mind-dependent, that whatever is perceived is real only in the mind of the perceiver. And the same logic applies even if one believed that universal attributes of things as existing are merely states of an absolute mind. Here too one must allow that the particulars are real only in *that* absolute consciousness. In truth, the universal entities that we acquire knowledge of by attending to the connotative aspects of sensory objects are just as objective as those objects. Granted, no one of them exists as a whole on its own in space and time, but they can pass through space and time, thereby constituting the qualified particulars in existence via those intersections, and constituting another instance of complementary interplay.

We now examine how excluding particulars outright results in losing all reason. Having established the reality of universals, however qualified, it is easy to uncover the conceptual confusion involved in the claim that all knowledge is derived from the purely rational understanding of them. First, it is simply beyond reason for there to be a domain populated solely by universals related to the scientific image. To see why this is so recall the points raised on behalf of the empiricist regarding space-time specifications. We stressed how experiential beings necessarily occupy particular places in the spatio-temporal scheme of things, for that allows a point of view, and a point of view allows knowledge to get started so to speak. A world consisting only of universals would remove the means to distinguish between separate things yet exactly alike. The idea of two things exemplifying absolutely identical traits would make no sense, if no conceptual interplay were at hand and particularity excluded outright, for nothing save a particular spatio-temporal designation could conceivably stand in to keep the things apart. The small change in every thoughtful rationalist's

pocket would collapse into one and only one small coin of each size, shape, and colour - an incoherent (and perhaps costly) outcome. Hence the countless instances of empirical triggers at work even in areas of characteristically rational endeavour, as in studying necessary truths found in logic and mathematics. To learn the theorems *one must use* the logic and mathematics, and this usage involves practice with particular instances, often to a 'particularly' numbing degree as every schoolboy knows. The usage grounds otherwise over-elevated material in particular spatial and temporal applications, and allows the universality to take shape and make sense in contrast to these particulars. Thus the interplay of the two concepts working as complements is of vital importance.

As regards universals pertaining to the manifest image, it just seems impossible to conceive of anything as rational knowledge on grounds that make no appeal whatever to the empirical domain. Without particular experiences occurring over time (including rational thinking) we would have no conception of change, as outlined in the previous chapter. All attending to processes of reasoning requires the temporally changing activity of experiential selves. And since the external physical world, be it conceived along empiricist or rationalist lines, has straightforward spatial and temporal features while internal psychical worlds as typically conceived have only straightforward temporal ones,[8] any sense of one's own self would also be lost on the thoroughgoing rationalist conception of a changeless, timeless realm of world-detached universals. Likewise, there is no way to give meaning to anything empirical as fact if it fails to appeal to factors belonging to the rational domain in one way or another. Such facts do not count as knowledge until they are linked into some rational scheme in which concepts convey either some logical entailments or some metaphysical framework or both. Utterly isolated facts (should any exist) are in themselves of no significance. The standing of facts in space-time relations decides the degree of significance they possess.

The fallacy involved in the commonplace claim that all knowledge is derived entirely from empirical experience has been exposed, and also the less common though reciprocally mistaken notion that all knowledge is derived solely through rational reflection has been laid out. Rational understanding and empirical experience and the universals and particulars in which they deal are neither

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[8] *Straightforward* in as much as one's internal spatial features can defy natural laws describing external spatial ones: visual *images* of Paris need not extend spatially any further than visual *images* of a French beret. Also, Peirce, James, and Whitehead, among others part with more *typical* views here by arguing that mind (and thus selves) as such are spatially extended.

mere accidents or aspects of the other nor independent or contrary to the other, but rather equally fundamental and real and mutually dependent aspects of one reality, each requiring the other for coherence and completion as inherent complements, fully understood only in light of collective reference. By way of summary, exemplary instances of working within a complementary ebb and flow are altogether apparent when looking to the standard practices of geographers and geometers and to the conceptual integrations of process philosophers. On the face of it geography appears as support for an empirical bias while geometry seems to suggest a more rational standpoint. Yet these fields represent comparable forms of knowledge. Geographers make a lot of empirical measurements: checking the weather, sounding flood waters, sampling soils, noting erosion, and the like. While their subject matter exists in a state of continual and particular flux, they rely on (relatively) fixed and universal mathematical laws to make sense of it. In reciprocal fashion geometers make a number of hunches as to what the fixed mathematical laws might be: running proofs on paper, fluctuating variables randomly, turning points, lines, planes, and shapes over in their minds to tease them out. The hunches come in a similarly particular flux, depending on the experience of the mathematical theorist, who hopes to achieve a comprehensive and universal rendering of the facts by sifting through the flux. The empirical particulars become significant in light of relevant rational universals complementing them. It has been said that the true scientist has an empirical conscience and a rationalist imagination, and the same should hold for recent philosophers who sometimes overlook (Is it neglect to procure needed laboratory facilities?) the interplay between these two components of knowing.

The fact that Whitehead is a recent philosopher who did not overlook conceptual interplay was mentioned early in the chapter.[9] His process metaphysics incorporates a detailed analysis of contingent particulars with a complex rational scheme infused with universal necessities. Processes are conceived as dynamic and concrete actualities but complemented by static and abstract forms of potentiality, from which a rejection follows of extreme nominalism or conventionalism concerning universals. This is because processes are understood as ontologically fundamental, so that at least some of them display a unity, structure, and identity not wholly or exclusively dependent on the

[9] Philosophers since Descartes are here referred to as 'modern', those since the turn of the century referred to as 'recent', and those writing now as 'contemporary'.

operations of mind. The existence and identity of particular processes (like all other particulars) is bound to their status in a matrix of space-time interactions. Thus process identification involves both type specifications as in a mood swing, and spatio-temporal designation as in Socrates' mood swing prior to dying in Athens. From a process perspective, particular instances of a universal share a lawful or habitual and hence straightforward *modus operandi* to bolster the perhaps conceptually problematic common properties of some sort. Here natural kinds, indeed all scientifically stipulated universals, are constituted by the common grounds of *what they do* instead of by *what they are*, following the descriptive rules of physics, traffic, grammar, what have you. The gross national product for example refers to similar sorts of figures in two country's calculations due to the law-abiding function such numbers convey in the context of just that communication process. Indeed all processes of a given type constitute a realm for that process type, just as all economic processes constitute the economic realm and all biological ones the biological realm. The advantage of this process conception is that realms are composed of their members by way of straightforward inclusion, whereas universals commonly conceived as specifying properties are not and cannot be composed of the properties that constitute them. Realms are best thought of as overarching processes, ones that need not be continuous in space and time. All tooth brushings for instance are considered as not only constituting a process kind by matching functional description, but also one immense process distributed throughout space and time. Via the evolving of process, universality is constantly supervening upon and complementing the particularity of each novel process. Finally, we drew attention previously to Bacon's labelling of empiricists as ants and rationalists as spiders. But quite aptly he adds that the true business of philosophy is like the work of bees, taking a middle path first of gathering materials from garden flowers, then of digesting and transforming them by a power all their own.

PART TWO
Becoming Subjects and Being Objects

§ The Means of World Making

In our analysis of empirical experience and rational understanding, and of universals and particulars, we noted the characteristic grounding of concepts in the space and time of the so-called 'real' world. Investigating the complementary pairs of subjectivity and objectivity includes the coming to understand just why that is the case and just what it entails. There are essentially two approaches to

reality: the objective, external, physical and the subjective, internal, psychical.[10] For the sake of independent argument the previous discussion assumed the existence of a real world conceived along the lines of the former approach. But to arrive at an adequate conception of a world of that sort requires more than the mere claim that an objective, external, physical world is actual, is existent, is real, is out there, for these ideas in themselves require elucidation. Reflecting on the relation between experience and the two approaches to reality indicates one reasonable option: to begin with a subjective, internal, psychical orientation, and try to derive whatever justification for substantiating an objective, external, physical one it allows.

The full significance behind the reason one ought to begin with the subjective approach is often overlooked. Simply put, from the point of view of human beings, experience in an important sense constitutes everything in the world, in that experience is necessary for there to be any world, any reality, for any particular person. All acquaintance with the world is either by reason of its being the object of such experience, filtered through such experience, or derived from such experience; and the whole significance of the world is to be found in or through it. The shift from empirical experience to rational reflection may be complicated, but it remains a fact that experience is basic to all knowledge because knowledge requires experiential perception and experiential reasoning. Perhaps, as some philosophers believe, truths are sometimes *a priori* without any involvement of perception or reasoning, and perhaps truths are sometimes accepted on the authority of others without perceiving them or justifying them with one's own reasoning. Still, they cannot count as knowledge unless and until they are experienced via the conception and assessment of reasoning. Now, one may choose the strong, more idealistic implication that there *just is no reality* beyond the flow of experience in the world (even here there are stronger and weaker versions regarding the amount and possession of conscious flow), and consider experience as not only basic to knowledge but the constructor of the known world. Note the suggestion in Whitehead,

> This process builds a common world of conceptions out of fragmentary worlds of experience. The material pyramids of Egypt are a conception, what is actual are the fragmentary experiences of the races who have gazed on them.... fragmentary individual experiences are all that we know, and

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[10] 'Subjective' meaning the contents of experience as against the reality lying beyond it; not particular opinions about that content as in 'coffee is nice' as against accepted facts about reality detected through senses and science as in 'coffee contains caffeine'.

that all speculation must start from these *disjecta membra* as its sole datum.[11]

Or one may hold that there are events that are never reflected in any subjective experience, implying that aspects of the world are not only different from experience, but also beyond reflection in experience. But on either interpretation, "The various streams of consciousness that flow on within the total world process," the idealist Timothy Sprigge insists, "are what matters most about the whole affair, either because really they are the whole affair, as idealists maintain, or because they are all that matters."[12]

It may be reasonable to begin with subjective experience, but the manner in which one derives a real world from that standpoint is then the more pressing question. Given the above considerations, it seems that there is nothing to distinguish the reality of a world from the subjective attending to appearances alone. The only evidence available in subjective experience is of course the content of that subjectivity, and we are right to question any assumption that something beyond present subjective experience might be responsible for it. Assumptions to that effect would be idle ideas, not nearly as suited to the subjective facts as would be denying that further something, because any knowledge of it could only be a duplication of knowledge more confidently asserted of present subjective states themselves. Here we face the age-old problem of scepticism, usually either ignored on pragmatic grounds (being a pseudo-problem of no consequence) or dismissed on grounds of incoherence (established via a questionable private language argument).[13]

Upon reflection however three different sorts of access to reality can be distinguished within experience: that which makes up one's own subjective psychical states, that which is taken to indicate subjective psychical states of others, and that which is taken to indicate a physical world beyond subjective states of either sort. Many philosophers, and indeed much in the way of comparative psychology and common sense, accept that the first move beyond one's own subjective bonds is via that part of it taken to indicate a physical world beyond either sort of subjective experience. First the presence of other bodies is noted for instance, and only then from bodily behaviour is the presence of other

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[11] A.N. Whitehead, *The Aims of Education.* London: Benn Limited, 1959, p.243.
[12] T.L.S. Sprigge, "The Importance of Subjectivity." in *Inquiry*, 25, 1982 pp.143-163.
[13] See G. Santayana, *Scepticism and Animal Faith.* NY: Dover, 1955; and T.L.S. Sprigge, *Santayana: An Examination of his Philosophy. London:* Routledge, 1985, for an analysis and critique of the analysis on 'solipsism of the present moment'.

minds deduced. But this begs the question by ignoring the full significance of the pervasive nature of subjective experience and simply assuming that the noted bodies belong to a physical world beyond subjective constraints.

An alternative first step, focusing initially on that portion of subjective experience that is taken as indicative of subjective states of others, respects the limits of subjectivity while still providing a degree of means for world making. We cannot help but take some experience as evidence, however unwarranted, for the presence of other subjective psychical states that are not ours. In bracing ourselves against the weather we look around and note what appear as our fellows bracing themselves in like fashion. The comparison leads us to see that our experiences are not entirely isolated and independent. We share characteristics with these other purported subjective states, we brave what appear to be the same storms in similar ways. Consider then that what the notion of an objective external physical world may *minimally* suggest, and knowledge of it *minimally* require, is merely something that can be experienced from a point of view other than one's own. For the established fact of a spread of experience alone, ranging from its altogether unique to its shared dimensions, can account for an adequate conception of an objective, external, physical world, one interpreted as entirely derivative from the *alleged* existence of these other differing subjective experiences. After all, objectivity is commonly thought of as applying to objects that can be experienced from more than one viewpoint. The overlapping features in experience on this view are analysed and described in the hope of ultimately uncovering the patterns and laws that pertain to how they are modified in their subjective, psychical appearances in one instance of subjectivity rather than in another. The outcome is an objective, external, physical world comprised of these features found in common and the categories devised to integrate them. This common ground cannot be located in any one instance of subjectivity, but is set out in the neutral categorical ground that lies collectively between them all. The objective, external, physical world thus conceived entails a mutual co-ordination amongst the many instances of subjective experience for ordering the content of appearances into a world, creating a synthesis of appearances from all possible points of view. The pervasiveness of subjective experience is therefore retained while arguably a world as real as need be is made from within it.

True, the important issue of how to establish other points of view *beyond one's own* for experiencing a world remains within the firm grip of subjective

scepticism. The evidence is still wholly the content of subjectivity, which without establishing other points of view does not afford the suspicion that the content refers to anything external to it. We are once again at a sceptical impasse, and the version of objectivity hereby established may seem fraudulently subjective by comparison to any common sense notion of the same. But surely we have made some headway: first although the starting point has been subjective experience the force of the sceptical challenge has been acknowledged, second the by-pass allows a version of objectivity consistent with our normal understanding of it, and third while keeping indefensible assumptions about an external world to a minimum no contrary assumptions excluding it have been entailed.[14]

The concepts of existence, actuality, and reality from this standpoint merely mean that any purportedly real entity generally follows the rules established in obtaining the features common to all experience, as separated from the solely individual features in specific subjective, psychical experience. Perceptual errors and conceptual confusions are then ruled out in a process of synthesis. Hallucinations and superstitions do not command our allegiance precisely because they locate in the shared space of the objective, external, physical world features of experience that do not belong there, for although our conceptions may not be entirely free from error, they tend to hold more of the truth regarding what is that shared dimension of experience. (Interestingly, on this view if something approaching universal agreement should arise suggesting say that the moon dramatically effects human moods, then that effect would indeed become an objective fact pertaining to the posited, external, physical world.) Despite attempts to put a gloss on the notion of existence that would mean that it refers to some additional characteristic beyond experience, there simply is no further metaphysical function to existence thus construed, no further property to enhance existent entities already entrenched in an objective, external, physical world via the synthesis from experience as outlined. In order to establish a reality and direct investigation at learning its ways and means, it is enough that a *real world* is that which confronts us in common experience. Even the scientific community, upon examination, is shown to make do on no more than this.

§ Science and its Subjects

In the main, science accepts this analysis in arriving at its adopted versions of the world, even if several points of view achieved through technological prowess

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[14] An ontology solely of subjective centres of experience is presented in the next chapter.

seem strange to the uninitiated. On the face of it, the world as known to science is an immense system of objective, external, physical, hence publicly available facts, as opposed to the world as lived through of subjective, internal, psychical, and thus private ones. But as science progresses these facts become more and more refined, and often the resulting view seems at odds with our ordinary experience and conception of things. Not in the habit of peering into microscopes or through telescopes, the wonders of science might make the world seem more 'blooming, buzzing, and confused' rather than more comprehensible. We question whether changing the perspective from that of the human organism either to that of the micro-organism or to the cosmos at large actually takes us nearer to the truth. We puzzle over our own place and purpose before the intricately detailed infinitesimals of elementary particles and the galactic immensities of space and time that the scientist comes across. This public real world as construed by science seems both peculiar up close, and consuming in its colossally distant reaches.

There is in fact an inherent bias toward the micro-organism and away from the human organism in science despite its professed principles (particularly since Einstein) to treat all points of view impartially. This is largely due to its methods. Despite that science explores how smaller entities combine into larger ones, it typically devotes more energy into ascertaining the nature of the small, because it is commonly believed that truths about the large-scale world are implied by truths about the small-scale world. Scientific results as applied to activity at the macroscopic level may be useful for technical and practical progress, but as to what is actually happening, the truth is viewed as contained in activity at the microscopic level. This bias is supported by the opinion that the properties unassisted human organisms experience such as shape, colour, extension, impenetrability, can be derived with little trouble from small-scale scientific investigation, but this is typically not the case the other way around. Simply looking at a tree fails to display its cellular activity, listening to a symphony does not convey the vibratory frequencies involved; but those same cells and frequencies, when coupled with the relevant scientific equations, do lead back to the tree and to the symphony.

Hence the precision and capability involved in the technical advance of science at probing minute specimens of reality appears to address the objective, external, physical world in its entirety, but in doing so often leaves human-scale common sense lagging behind. This initial bias inadvertently conceals a further

more fundamental one employed in the methods and subject matter of science, having to do with what it leaves out of its accounts. Notwithstanding the increasingly subtle and sophisticated strivings toward a comprehensive understanding of reality, science fails to offer an adequate account of the subjective, internal, psychical world of experience. Symptomatic of this situation are conceptual conflicts intractable to accepted scientific procedures and outcomes. The facts of science are always undergoing revision, and the way theoretical constructs and the experiential data recorded in their support are interpreted must finally bridge a gap that separates the scientist from the layperson. The revisions must be justified on grounds that appeal to a view of reality broad enough to span factors extending from normal daily experience to the evidence underlying extraordinary scientific theories. The conflict arises when science is so exacting that it far surpasses the reach of the non-practitioner, for in these cases it is easy to overlook the fact that science is merely a technically proficient subdivision of a more inclusive reality of common intersubjective experience shared by practitioners and non-practitioners alike.

An entirely objectivist outlook may have a hold on physical scientists, on social scientists, on philosophers, and on the general public, but there is no such thing as an utterly detached objectivity. Science cannot ever hope to become an absolutely closed and complete system, because leaving the scientist's own subjective experience out of the account turns science into nonsense. Scientific ideals betray the fallacy of trying to combine complete explanation with positivistic scepticism. Under this guise, psychologists are to look to the biology that human beings supervene upon to complete explanation, biologists in turn are to look to the chemistry that it supervenes upon to do the same, and chemists in turn are to look to the physics. The scientific ideal remains the Laplacian replacement of human knowledge with a more complete understanding of atoms in motion: to know at one moment of time the exact positions, the velocities, and the forces acting between every last elementary particle, so as to deduce the positions and velocities of the same particles at any other place in the universe at any other time in the past or the future. But this sort of understanding in the end offers little that we are interested in. The forces acting between elementary particles cannot approach a comprehensive understanding involving experiential beings of human calibre, because Laplacian representation ignores our normal experience and answers very few questions about it of any general relevance, due to a misunderstanding of the very nature of experimental science. "The generality, determinism, objectivity, materialism, and mathematisation of

science," as Stephen Priest has surmised, "cannot explain the individuality, freedom, subjectivity, consciousness and unquantifiability of the subject."[15]

Science is not a completed and closed system, but simply an elaborate mapping of experience. A map cannot get anywhere reading itself, nor can an elaborate theory on map-reading get anywhere reading a map. To be of any use, actual positions in the landscape must be identified with the mapped co-ordinates. The same is true of the equations and formulas of science since the numbers do not themselves point to a world of real events. The closed scientific system of objective, external, physical facts is put to use by opening it up through identifying how the subjective, internal, psychical landscape relates experientially to scientific findings. We must have what Michael Polanyi refers to as 'personal knowledge' acquired through skilful, tacit engagement as map-readers to make sense of science. Students of medicine - one of Polanyi's many examples - are mainly training their eyes, their ears, and their sense of touch to develop an expertise in recognising the things referred to in their textbooks and theories, thereby bridging the gap between the data in books and the facts of experience.[16] In the halls of every prestigious institute of higher learning are countless scholars and scientists actively engaged one way or another in doing likewise. No science can predict unfolding facts except by relying upon an art, based on conceptual connoisseurs who note the correspondence between explicit scientific predictions and actual sensory experience to which these predictions are meant to apply. There may in fact be (indeed there usually are) long logical and causal chains that stretch from the scientific readings taken by advanced observational equipment to their cashing out in experiential terms, but the length and complexity of the links ought never to undermine the implicit relation of map to territory, if we mean to keep from losing our way.

Nevertheless, in their day to day practical affairs scientists are basically able to bracket off subjective, internal, psychical considerations, or treat them as small anomalies in an otherwise perfectly regular system of physical relations and leave it at that. After all, they enjoy great success and admiration for advances made in comprehending objective, external, physical reality. Vigorous exploration has led to factual understanding of the molecular, atomic, and

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[15] S. Priest, "Newton and Hegel: Can Science Explain the Scientist?" in *Hegel and Newtonianism*, M.J. Petry ed. Netherlands: Kluwer, 1993, p.117.

[16] M. Polanyi, *Personal Knowledge*. London: Routledge, 1962; the thesis also summarised in, M. Polanyi, "Personal Knowledge" in *Meaning*, H. Prosch ed. Chicago: Univ. Press, 1975.

subatomic levels of the microscopic world on the one hand, and the structure, dynamics, and evolution of the galaxies that make up the history of the universe on the other. The form and functioning of biological organisms and the mechanism and development of natural species have also been discovered. These and countless other marvels of modern science have fostered dramatic technological advances in industry, agriculture, transportation, communications, medicine, and so on. Science manages as much with strict adherence to an objectivity it arrives at via intersubjectively testable and verifiable material. The rendering of that material to a publicly accessible, yet scientifically precise form requires operating solely in the framework of mathematical categories descriptive of objective structural properties, while leaving subjective qualitative ones either out of the account entirely or merely utilised as markers for thresholds of difference then designated by mathematics. Whitehead and Russell point out that, "physics is not mathematical because we know *so much* about the physical world, but rather because we know *so little*, merely discovering its mathematical properties."[17] It is a limitation to be sure, but a limitation justified on the grounds that a particularly reliable certainty is maintained in keeping to abstractions within the confines of communicable theoretical postulates that are universally understood. Thus science thoroughly investigates the functioning of the physical world without much regard for the features of psychical reality.

Again, it need not be assumed that all reality is accessible to objective investigation or that reality cannot be studied by other means. But it would be peculiar indeed, given the impressive array of tangible advances through unimpeded exploration of reality's objective, external, physical components, to insist on a scientific preoccupation with the natural perceptual endowments and emotive tone for example of the lab technicians running the scientific experiments.[18] To formulate the general scientific world view is to look to the system of basic concepts about reality it has developed, and the consequent treatment of problems intimately connected to the basic questions about reality. It so happens that the main orientations thus implied range from the epiphenomenal dualistic to the scientific materialistic, with an emergent naturalistic outlook falling somewhere between. It should come as no surprise that they are all somewhat reductive as a result of corresponding to an objective scientific agenda. Psychical phenomena are of little ontological interest due to

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[17] Quoted in U. Uus, *Blindness of Modern Science*. Estonia: Tartu Observatory, 1995, p.29.
[18] Although R. Sheldrake, in a public lecture at Edinburgh University, has recently proposed that very idea as a corrective for limitations arising from scientific biases.

their assumed causal inertness, and little epistemological interest due to technological advances surpassing normal perceptual abilities. These are both reasons that steer the course of scientific endeavour more toward the objective, external, physical domain, but its reliability there in no way implies a comparably successful undertaking in the other.

§ The Reality Behind the Metre-Readings

Presupposed in this analysis of the common features of normal experience and analogous operations in scientific exploration is the taking of subjective experience as primary. Knowledge of the world is viewed as derivative from this initial standpoint, given the directness and relative certainty of subjective experience. The motivation for adopting this strategy was mainly one of parsimony, following something akin to (but far less absolute in foundation than) a Cartesian sceptical hesitation regarding any unwarranted positing of entities beyond experience. We have been playing the positivist to the utmost, with a result traditionally shunned by that school and its scientific adherents. Needless to say, this is not the only approach available. Time and again philosophers have joined scientists in trying to take knowledge of the objective, external, physical world as basic, and then relate or reduce the subjective counterparts to that knowledge.

But philosophers and psychologists alike can hardly focus solely on what humans and other animals are composed of and how they behave, and leave the subjective experiential dimension to one side, believing it to be of no importance or simply not there at all. It is simply absurd to suppose that, aside from the structural material studied by mathematical means, experiential beings are not aware of any qualitative component in experience; and nearly as strange to suppose that what we seem to be aware of is really something quite different, and so fair game for an objective approach. Psychical experience cannot be different from what it seems to be, because it always *just is* what it seems to be, the subjective, internal, psychical component as such just is the seeming itself and nothing more. This is not an altogether easy idea to grasp if restricted to the confines of a publicly tested and verified science which leaves out the essential insight. But psychical experience is a certain sort of reality that simply is, "a reality whose being is one with its own non-discursive knowing of itself."[19] That is to say, the *being* of what is subjective, internal, and psychical consists in

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[19] T.L.S. Sprigge, "The Importance of Subjectivity." in *Inquiry*, 25, 1982, p.147.

its knowing of itself, in knowing its own character. Charles Hartshorne, Timothy Sprigge, and Thomas Nagel have all intimated the being of subjective experience by suggesting that it is present in an individual at a certain time if there is an answer to the question what it was like being that individual at that time. Sprigge in particular has written extensively on the issue.

> In a sense there is always a being who knows what it is like being that individual, namely the individual itself. Yet no one need know of the existence of such consciousness in a discursive or conceptual manner, and from the outside, for it to be a reality.[20]

Note the attention drawn to the special circumstances surrounding knowledge claims about such realities. To every experiential being there is a way in which the world and that being itself appears in experience. It is the reality *from the inside* most intimately known. But *from the outside* a problem immediately arises. To know another's subjective experience is to know just what it is like to be that being, 'a living act of imaginative participation' only ever partially realised. "Such knowledge cannot be nailed down in a cut and dried linguistic statement intelligible to all who know the language,"[21] and attempts to evoke the requisite sentiment may not always work. Of course the rendering of the knowledge into an intelligible statement implies a transfer of it into the objective, external world, but this cannot help but reduce it to a nominal essence consisting merely of the indicators by which it is recognised. Nagel agrees that something inevitably is lost in a shift toward the realm of objectivity.

> Certainly it appears unlikely that we will get closer to the real nature of human experience by leaving behind the particularity of our human point of view and striving for a description in terms accessible to beings that could not imagine what it was like to be us. If the subjective character of experience is fully comprehensible only from one point of view, then any shift to greater objectivity - that is, less attachment to a specific viewpoint - does not take us nearer to the real nature of the phenomenon; it takes us further away from it.[22]

Despite that we cannot deny the qualitative component that constitutes the being of experience, and despite that we cannot account for it on objective scientific terms, the present century does chronicle numerous futile attempts at an outright reduction based on explaining subjective psychical entities in objectivist physical terms, the doing away with internal subjects by reducing them to external objects. Skinner's behaviourism, Wittgenstein's private language

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[20] T.L.S. Sprigge, "The Importance of Subjectivity." in *Inquiry*, 25, 1982, p.146.
[21] T.L.S. Sprigge, "The Importance of Subjectivity." in *Inquiry*, 25, 1982, p.147.
[22] T. Nagel, "Subjectivity," in *Mortal Questions*. Cambridge: Univ. Press, 1979, p.174.

argument, Ryle's analytic behaviourism, Armstrong and Smart's mind-brain identity theories, Putnam and Fodor's functionalism, Dennett's eliminative materialism all come to mind, as at the very least inconclusive if not abandoned attempts.[23] The motivation for such projects is easy to see. The absence of subjective considerations in the objective, external, physical picture thwarts the goal of universal scientific explanation. In the midst of scientific rigour this unexplained centre of everyone's universe threatens to reassert itself and challenge the unacknowledged metaphysical stance of a scientific realism that relies on an implicit physicalism.

More recent theories to be examined presently have attempted to show that an irreducible subjectivity is compatible with physicalism. The appeal of these arguments is that, unlike the other physicalist programmes that either try to reduce the psychical into the physical or to deny its existence outright, these arguments respect basic intuitions about our experiential core, while taking them on as the great challenge to completing an objective outlook. To contend that these psychical experiences exist is to candidly allow that subjective states such as tasting wine and feeling happy are instances of psychical properties. But a physicalist, in holding that everything that exists is either physical or a property of something physical, cannot of course allow ontological status to psychical properties all their own, and must find some other way of treating them. The suggestion is that if one refrains from reifying the objects of experience, then subjectivity poses no problem. For if objects of psychical experience are allowed but without the appropriately corresponding objects in the physical brain, then clearly the psychical and the physical are not identical. So these attempts to do away with subjective, internal, psychical experience turn on analysing experience in a manner that differs from the experiential-act experiential-object model; more specifically, they consider there to be acts of experience which somehow point to the things which they are the experiencing of, yet without any mediation from anything immanent within the experience.

Three strategies are commonly employed: the treating of objects of experience adverbially, functionally, or by direct realism. Briefly, in adverbial accounts such as those of Sellars and Chisholm, the object of experience becomes a feature of the act of experiencing, giving the act *the property* of being 'of-something' as in

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[23] This sweeping dismissal of wholesale reduction and the swift sketch of less extreme yet similar measures that follows merely accent the objectivist motives and subsequent limitations. Further discussion is beyond the scope of these metaphysical preliminaries.

'seeing redly' or 'hearing loudly'. This phenomenalistic approach is the belief that the existence of physical objects (as opposed to the corresponding experiential ones the move replaces) consists entirely in the possibility of appropriate chains of perceptual and conceptual experience. Functional or instrumental accounts are cast in many forms such as those of Fodor and the early Putnam, but essentially the line taken is that any states that exhibit intentionality can be analysed into corresponding functional or instrumental (hence physical) states somewhere along the line. Objects of experience may not be intentional in themselves - it is hard to see how a pain for example could be *about* something - but they are embedded in complexes of intentional states and as such are detectable in their physical domain if probed sufficiently. Direct realist strategies such as Austin's and Armstrong's maintain that because perception is veridical, it follows that the only objects of experience are public and physical anyhow, and therefore present no challenge to physicalism.[24]

This contention of the direct realist, however, that there are independent objects *out there* to which one's experience mysteriously points cannot remove the objects of consciousness without running into difficulties. In addition to problems arising from the mystery of the relation, this position commits the realist to one of two unacceptable outcomes: either insights into this independent reality are not available through reflection on characteristics often present in experience, though clearly they are available, or if the acquisition of insight is granted, then there is indeed an entity as its source, one at least analogous to experience. In short, we once again have the presence of an experiential object.

As to the variety of contentions held by particular adverbial and functional theorists, there are any number of subtle arguments, the literature in each case extensive and finally inconclusive. Delving into the subtleties of these debates however, is not only too far removed from the present discussion, but also unnecessary if we bear in mind at the outset that the target in each case is merely the reality of *objects* of experience. Such strategies simply disregard the all-important psychical 'feel' of an *act of experiencing*. The 'what-it's-likeness' of subjective experience is left out of the equation when the focus is limited to ways

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[24] For representative statements of their views see R.M. Chisholm, *Perceiving*. Ithaca, NY: Cornell Univ. Press, 1942; W. Sellars, *Science and Metaphysics*. London: Routledge, 1968; H. Putnam, *Representation and Reality*. Cambridge: MIT Press, 1988; J. Fodor, *A Theory of Content and Other Essays*. Cambridge: MIT Press, 1990; J.L. Austin, *Philosophical Papers*. Oxford: Univ. Press, 1979; D.M. Armstrong, *Perception and the Physical World*. London: Routledge, 1961.

of getting around the internal objects of experience. Even if these objects could be caught - convincingly or otherwise - in the web of scientific theory, the *experiencing* of them seems to slip through. It is one thing to call into question the existence of objects of experience, but quite another to isolate an act of such experiencing at the same time from its object under question, and contend that alone the act has no existence either.

It is true that taken together in such manner the act and object appear to have no specifiable nor *objectively* real features: the latter has features but no reality while the former is real but without specifiable features. And on this reckoning it would follow that acts and objects of experience could not be known by introspection to exhibit features incompatible with physicalism. But the physicalist cannot have it both ways: either the object is viewed as real and likewise its features are real, or the object is de-reified and the act then takes on adverbial features. In drinking scotch there really is an object attended to in experience with its real single-malt features, or there is no such object but the inebriating experience of 'feeling scotchly' is real enough, whether its qualitative feel is ever specified, or even remembered. If the physicalist is allowed both a de-reified experiential object and a featureless experiencing act, it follows that from the viewpoint of the subject there would be no real difference whatever between having and not having an experience. This amounts to the absurd denial dealt with previously of the reality of experience altogether. A less incredible line might be that from the subject's viewpoint having and not having an experience are distinguishable, as are one experience from another, but that the subject cannot make out what that difference may consist in. But this is to forget that when we are aware of experiencing it is precisely because we are attending to an object of experience, regardless of how its ontological status is construed, and that from such attending to objects we discern the nature of the experience, regardless of how much scotch is involved. To have something as an object of experience is to have the subjective, internal, psychical element of experience, again the 'what-it's-likeness' of experience. Physicalism cannot fully accommodate such experience in an objective, external, physical framework.

§ Complements Reconsidered

The objectivist view, so fertile in science, is fraught with difficulties when it is aimed at attacking non-reductionist standpoints, for the former merely asserts that there is no objective evidence for the latter. Yet the existence of a psychical domain is quite compatible with an objective approach that provides no reason

for believing in such things. Subjective experience need not entail the strong thesis that it clashes with the objectivist view, and that no rational means resolve the clash, due to the omission of qualitative components in such accounts. A weaker version has it that the two perspectives are actually compatible and complementary. Once it is allowed that something can be the case even though the objective approach cannot show it to be the case, the fact that the objective account is inherently incomplete and in need of supplementation by a qualitatively inclusive perspective presents no insuperable difficulties.[25]

It would take us too far afield to examine all the many issues relevant to establishing how the objective and subjective approaches may complement each other without conflict. In the final analysis the topic would encompass the whole of mind-body relations. The principal issues in sum revolve around the workings of free agency and personal identity in an otherwise causally lawful physical world. Strong intuitions mark out our sense of freedom and non-reductive features mark out our sense of personal identity, and both appear to clash with the claims of a world construed as entirely objective. One overarching, top-down strategy that goes some distance in resolving the disputes has been implied in our equating of the construction of an external world in everyday experience with the constructing of scientific understanding. We partially amend the break between scientific knowledge and personal understanding of psychical selves as free and real beings, by keeping in mind a reformed complementary conception of scientific knowledge that concedes the part experiential selves necessarily contribute to the shaping of such knowledge. We have seen how an external world is derived in both instances through subjective and intersubjective sources, and we have noted the reliability of keeping exclusively to appropriately objective methods in dealing with problems unique to that world. But this is not the whole story. Science is unscientific if its basic claims conflict with certain fundamental facts that are found empirically through subjective investigation. The two sorts of claims need rather to work as conceptual complements. One primary requirement for a *comprehensive* world picture is that it should not contradict any evidence about reality, whether it be objective or subjective evidence. It is unscientific to envision a comprehensive picture that denies the art of experience-directed diagnosis, the tacit handling of scientific instruments,

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[25] For a critique of objectivist views in science and a development of complementary subjectivist ones see, U. Uus, *Blindness of Modern Science*. Estonia: Tartu Observatory, 1995.

the pivotal flair for data interpretation, the importance of the conceptual connoisseur.

A more piecemeal strategy from the bottom up concerns the actual clashes that appear to arise between the two approaches. For there are two ways of dealing with such situations that respect their complementary nature. First, the objective account may not really establish what it claims to establish, and subsequent research may be directed toward a resolution based on the acquisition and interpretation of further data to that effect. Second, when it seems reasonable to accept the conflicting findings from the objective account, then the subjective account - notwithstanding a natural inclination to believe it - may be found not to have established what it claims to establish. This tactic of course has its limits, based on what can and cannot *reasonably* be given up from experience, as we have seen in foregoing discussion of reductive and eliminative strategies. We can contend however that when claims made from subjective viewpoints clash with objective facts, then in general the former claims have been shown to be wanting, as in instances of hypnosis unwittingly constraining one's freedom. The truths obtained from a subjective standpoint are then taken as veridical in instances when they do not clash with objective facts, and possibly so in all others. There is always a complementary ebb and flow: putative facts about one's subjective experience relinquished at times in light of relevant objective ones, and putative facts about the objective world (initially derived from subjective experience) likewise discounted occasionally in instances of clarified experience. Just as in the objective realm, where scientific theories rise and fall in relation to results of empirical testing, there is always an element of faith or conjecture involved, and the corresponding hypotheses and tests.

Finally, one may wonder if this strategy would not entirely do away with any subjective, internal, psychical features eventually. Psychologists and physiologists (among others) point out that as the causally lawful factors of the objective, external, physical side of reality are gradually exposed, countless aspects of character and free agency can be cited as being determined externally.[26] But this is once again to neglect the view from the subjective inside in light of its objective outsider counterpart. The two separate sorts of investigation must be kept distinct, and their blend, if achieved to any notable degree, recognised as an

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[26] The philosophical literature on folk psychology concerns ongoing revisions of psychological concepts in light of scientific advances. For an overview see, *The Philosophy of Mind.* J. Glover ed. Oxford: Univ. Press, 1976.

utterly unusual one. "If the consciousness were to be identified with anything physical at all," Sprigge makes it clear that,

> the identification would be unique in that one could know the complete inherent character of a state of consciousness without knowing its physical basis in the brain, and one could increase one's knowledge of the physical goings-on in the brain, at every level of description, while lacking the ability to have that empathy with the creature in question which would be required if one were to know what its state of consciousness is like.[27]

Although personal identity itself may seem to disappear solely under the scrutiny of outside analysis, with all acts of agency slipping into events, and all persons slipping into things, this is precisely one of those basic facts of experience that from the inside cannot be eliminated outright. A category mistake is committed when one considers such a possibility, for although the subjective and objective components complement each other, the origin of each remains in differing ontological domains.

We have now come full circle in our considerations, first of the nature of complementary ebb and flow by examining the empirical and rational components of knowing, and then of complementary structure as applied to physical objectivity and psychical subjectivity. In the first chapter we noted how an emphasis on process was warranted due to the marked bias in favour of things in the prevalent substantive philosophies. An emphasis on both the rational and on the subjective has here been suggested to counteract similar biases on the empirical and the objective. Neither the thoroughgoing empiricist nor the thoroughgoing objectivist can make do without their corresponding counterparts, for in all these cases each side depends on the other in a complementary relation to reach a coherent completion. In particular, these psychical ponderings echo the process ponderings in that both process events and psychical entities in a sense uphold their respective conceptual pairs. Coherent notions of substance and objectivity were derived unproblematically from process and subjectivity, but the same was not so in the opposite direction. These suggestions invert the commonly held suppositions that the objective world is the more substantial than the subjective, and that enduring substances are more so than changing processes. As the singular prerequisites for the psychical realist, process philosophy of Alfred North Whitehead, they also pave the way to placing the changing nature of experience in the centre of philosophical

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[27] T.L.S. Sprigge, "The Importance of Subjectivity." in *Inquiry*, 25, 1982, p.147.

investigation. To be sure, a most appropriate position for setting out a metaphysics of experience.

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World of Experience

"God is an actual entity, and so is the most trivial puff of existence in far-off empty space... And these actual entities are drops of experience, complex and interdependent."

PART ONE
The Idea of Psychical Realism

Psychical realism is the view that the world is real and everything in it essentially psychical - that there is a plurality of existences all of which are composed exclusively of sentient entities, of subjects of experience, marked by the presence of some degree of such mind-related or experiential functions as feeling, perception, memory, volition, thought. Yet to describe reality as composed of sentient entities that are essentially psychical and functioning experientially calls for some elaboration. Let us take a closer look at how these terms are being used.

'Sentience' and 'experience' as presently employed designate a broad generalised instance of their ordinary usage. That usage is of course originally derived from our everyday experiential reality as lived through. We understand the notion of sentient beings having experiences first and foremost by being sentient beings having them ourselves. We understand what it is like being us. A sentient experiential reality suggests a world in which all that is consists of experience analogous to that which is so understood, or in arrangements of that which is so understood. That is to say, that aspect of ourselves making it true that there is something it is like to be us is likewise true of all of reality, or at least of all of reality's basic constituents.

Now the analogy to our own experience may be undeniably direct or it may be dim, experience for instance ranging from the seductions and torments particular to human beings to the rudimentary attractions and aversions that mark subatomic existence. That the basic constituents of reality are not devoid of experience by no means implies the presence of conscious thoughts or sensory

perceptions. Yet all reality however great or small is conceived relative to our experience, conceived to be something analogous to what we know as feeling, perception, memory, volition, and thought in ourselves. The idea is that since these basic psychical qualities are capable of having infinite scope both above and below their human forms, the experiential essence of all reality is not absolutely different in kind from that which we possess. While we do commonly grasp some sort of experience by analogy to our own in those around us (and many among us sense it there in animals), the psychical realist extends the analogy all the way up and all the way down so to speak, conceiving an experiential component in the tiniest known entities and in the universe in its entirety, and in all between. Hence it is in this manner that the world is considered *psychical* in *essence*.

The term 'entities' as presently employed likewise designates in a broad generalised manner the nature of the ontological commitments psychical realism requires. Although a number of ontologies are conceivably consistent with a world fashioned out of elements that *function experientially* - events, atoms, minds, persons, the absolute, to name a few - the psychical realist specifies experience as clarified through one's own instance of it as fundamental to this theory of existence. In choosing the phrase 'sentient entities' the reality of these subjective centres of experience - part action and part thing, pervasive and precise in turns, both like whatever we live through and very much unlike it - these real existences alone are indicated and highlighted. As shown in the opening chapter, language defies accuracy in the attempt to indicate existences with terminology impartial between substances (things) and events (processes), and so in a sense 'sentient entities' (and the 'experiential events' to come) are phrases settled for as at least moderately nondescript.[1]

The doctrine thus stated at this point and acquaintance with the relevant terms thus established, note that although the idea borders on the absurd at first blush, it has had its adherents among eminent thinkers through history, and has been adopted in various forms by many of the great minds of our time. The more speculative works of Plato and Aristotle possess some affinity to and the working out of psychical realist suggestions already present in Pre-Socratic philosophy. Amongst medieval scholars Paracelsus, Telesio, and Bruno put forth something like psychical realist positions. Leibniz produced the first clearly stated form in

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[1] The 'sentient entities' of this chapter and the 'experiential events' of the next are more or less synonymous, the first phrase stressing the psychical and the second the process quality.

modern philosophy, but in Spinoza's 'pantheism', in Schopenhauer's 'will' and in Schelling's 'pure activity' we find other highly developed interpretations, as well as in the philosophies of Lotze, Royce and Montague, and the psychologies of Wundt, Fechner, and James. In the present century traces of the doctrine appear in the philosophical works of Peirce, James, Bergson, Alexander, Whitehead, and Hartshorne; in the biological works of Chardin, Agar, Wright, Waddington, and Rensch; in Troland's work in psychology, in Burgers' work in physiology, in Prigogine's work in chemistry and in Bohm's work in physics.[2] Since psychical realism and a variety of natural philosophies have considerable overlap *as well as* distinguishing features, the emphasis here is of course on the *various forms*. All things considered, the common ground the positions share seems the more significant attribute and sufficient support for the point being made. To be sure, there is little point in cataloguing those who endorse psychicalist views beyond backing the hunch that there must be something worthy of reckoning in ideas that captivate so many profound thinkers, and that much despite the admittedly vague and open-ended nature of the class compiled here. It so happens that inferences from authority, though never valid, do often lead in the right direction.

To return to elucidating our particular doctrine. The manner of composition of the world's sentience is of vital significance in understanding psychical realism. How sentient entities are arranged dictates whether any individual thing or act is sentient itself or merely made up of sentient entities, whether it is an individual singular experience or a collective group of experiences. For whatever lacks aspects of mind is held to be but appearances or abstractions from what does so at some level. Thus while the country cobbler experiences as a whole, as do each of his sentient cellular parts, the cobblestone he cuts does not, though made up of sentient molecular parts. That the mountain lion feels is clear from its activity and its unity of purpose, that the mountain he prowls does not is revealed by the greater degree of activity and unity the constituent atoms of the mountain display in comparison to the whole mountain which, even if volcanic and erupting, still fails to display a comparable unity.

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[2] The most extensive bibliography of primary and secondary sources on psychicalist writers is in P. Edward's, "Panpsychism" in *The Encyclopaedia of Philosophy*, NY: Free Press, 1967, Vol.6, pp.30-31. For references on recent scientists and philosophers, consult C. Hartshorne's, "Panpsychism: Mind as Sole Reality," in *Ultimate Reality and Meaning* 1978, pp.115-129.

The question of how one discovers such arrangements and decides which are sentient wholes and which merely aggregates of sentient parts is more an empirical matter than a theoretical one, turning on our changing abilities to note the presence of purposive unitary activity. At some distance for example a swarm of bees may seem to act as one, in some circumstances an iguana comes across as just another jagged rock. At present among known existences, the psychical realist contends that particles, atoms, molecules, cells, animals, and persons answer to these criteria uncontroversially, while plants, crystals, and energy fields represent problematic applications, and the smallest and greatest known entities in existence, that is the subatomic particles and the universe itself, represent both problematic and speculative applications. Specific problems and speculations are addressed in defending the thesis in later sections of the present chapter, while further more speculative suggestions are also taken up in the final chapter. In any case, reality according to the psychical realist consists entirely of actual cases, forms, aspects, types and degrees of experiencing, however varied their arrangements in terms of singulars and collectives may be.

One final aspect of the idea of psychical realism involves the nature of endurance. Just as experience is categorised according to its status as either an active singular of sentience such as a molecule of water or as an aggregate of sentient parts such as a cloud of water molecules, experience also divides into momentary occurrences or throbs of experience on the one hand and series or patterns of experience on the other. Along with 'throb' incidentally, the terms 'pulse', 'moment', 'centre', and 'drop' have all been employed by philosophers to convey the temporal atomicity conceived in experience. Despite an array of opinions regarding the actual span involved and the espistemic availability of the various forms of experience present in reality, process thinkers all but universally agree that some framework or other is required that divides or portions off experience incrementally. Perhaps Peirce and Whitehead represent conceptions of experience within a process orientation that are continuous and atomic to their utmost degree respectively. Take the feeling a human presently experiences as a paradigm example of a momentary occurrence of experience while that human's experiential history or complete account of personality as an example of a series or pattern of experience. According to the psychical realist, selves are commonly granted unwarranted ontological privileges. Enduring persons are abstractions derivative from personalities and personalities are abstractions derivative from traits or patterns of activity which in turn are abstractions derivative from individual sentient activities or quantums of

experiential process. Activity alone is fundamental to all these abstractions, specifically the active becoming of the momentary sentient entities. On this view *all* so-called enduring entities are held actually to be abstractions from momentary experiences based on certain stabilities in the flux of events. Everything that endures - be it an electron, an atom, a cell, or a psyche - is a temporal unity composed of a series of momentary sentient activities, each of which incorporating previous activity in a manner suggesting an enduring individual. Even in examining a stone or a statue the appearance of an utterly inert and inanimate object is due to the (nearly) absolute regularity in the patterns of the molecular activity under observation. What we have in such cases are merely instances of what Peirce referred to as 'habit ridden mind', where the regularity of the molecular events can suggest the illusion of an enduring thing. Clearly the nature of the way a temporal series of sentient entities are aligned may foster varying levels of complexity of experience ranging for instance from unified activity at a profoundly human level to momentary erratic agitations of a basic subatomic degree. Note that the psychical realist is in no way committed to a world of only one level or only one duration of experiential ingredients despite adhering to an ontology of sentient entities in an atomistic psychical realist framework.

§ Psychical Consorts

A comparison with a host of related ideas will also serve to develop and clarify the doctrine. Bear in mind however, that we necessarily adopt a degree of stipulation when cataloguing the doctrines that follow, some originating in antiquity, and more than a few taking on meanings in subsequent applications inconsistent with earlier formulations. There are no entirely fixed and clear references for the various labels used and misunderstandings abound. Panpsychism (from the Greek for *all* and *soul*) also refers to a view that all things are ensouled, that everything that is experiences, that the world is made up of sentient subjects. But it is often used rather more broadly to mean that everything is psychic or at least possesses a psychic aspect, thereby allowing interpretations inconsistent with psychical realism as here defined. First, the panpsychist position may be construed as one form or another of a double-aspect theory in which everything is both physical and psychical, whereas psychical realism removes the physical component outright as normally understood and installs in its place an ontological idealistic alternative, namely an ontology of sentient entities or events. Second, the panpsychist may fail to distinguish

between sentient individuals and groups of such individuals that as a group are not sentient. This distinction proves pivotal in exposing a fair number of misinterpretations and addressing the consequent misdirected criticisms that arise. Finally the term 'panpsychism' may suggest unwarranted associations with various renditions of 'psyche' or 'soul' as understood in the philosophies and mythologies of antiquity and in contemporary psychological and religious thinking. These associations are inappropriate and the phrase 'psychical realism' is used in part to avoid them. No one theory of the human soul is specifically entailed by psychical realistic metaphysics and many such theories are clearly at odds with it.

Animism and hylozoism are doctrines that due to superficial similarities have contributed to the confusion and misunderstanding that persists in philosophical treatments of psychical realism. Ancient animists (from the Greek *anima* meaning soul) such as the Aristotle of the body-soul relation theory (especially in *De Anima* and *De Generatione*)[3] believed that everything that exists is ensouled, animated, possesses an active principle that keeps it in motion. Ionian hylozoists (from the Greek *hyle* for matter and *zoe* for life) such as Thales and Anaximenes, and later the Stoics in their crude attempts at a philosophy of nature, believed that life pervades all of nature which they conceived by predicating life to all matter. In some respects the latter term is treated as the more philosophically refined equivalent of the former - a mere working out of animist detail - but this overlooks the key distinction that for the animists souls are attached to material bodies and work through them as an immaterial inner principle of activity, while for the hylozoists all things are alive by virtue of life being an inherent and inseparable property of matter itself. Many of the early animists and hylozoists not only regarded all existence as animated or alive, but also considered it to be informed by an animated cosmic substance that pervades the universe and renders all things into a microcosm-macrocosm relation with it. Thus in the account of Sextus Empiricus we find that the followers of Pythagoras and Empedocles held that,

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[3] Employing 'the Aristotle of' indicates this is but one of many aspects of his thought. Depicting Aristotle as 'animist' is hardly adequate, but then, what would be? The volume of writing even considered *his* is a matter of no small debate: scholarly editions of the complete works divide them into works known to be Aristotle's, works of unknown or uncertain authorship, and (surely unexpected) works known *not to be* Aristotle's.

> There is a certain community uniting us not only with each other and with the gods but even with the brute creation. There is in fact one breath pervading the whole cosmos like soul and uniting us with them.[4]

True, at the present stage of defining and defending a psychicalist outlook, this further claim seems little more than unbridled speculation, but it is also true that the initial ideas as outlined may claim a degree of plausibility nowadays that was unavailable to their pre-scientific originators. Hylozoist notions in particular have been suggested in part by the physical sciences, especially when one bears in mind the incessant activity discovered by physics on the one hand and the increasing ambiguity involved in defining life by biology on the other. But for all that, neither view stipulates the manner of arrangement of activity or life, nor articulates and emphasises the presence of a generalised sentience understood analogously to our own. The absence of these key concepts upon which psychical realism is developed often represent the force of the refutations aimed at these early precursors to the doctrine.

Vitalism is another metaphysical doctrine that tries to explain the presence of life by postulating an irreducible substantial entity that imparts a life principle to otherwise inanimate material. Vitalists believe that living organisms are not sufficiently explained in physical or chemical terms, specifically the terms of mechanistic activity innate to matter and ordered merely in accord to material structure. Such activity can be fully explained only by introducing something beyond that structure, something that would ensure the uniqueness of life. In the simpler renditions the presence of a further *thing* such as soul does the trick: life conceived as a kind of force, a current, a fluid added to inanimate matter. This position is clearly at odds with psychical realism. More sophisticated vitalists posit the emergence of special relations or principles of organisation that obtain along with the complexity of biological organisms. As nature attains greater complexity, to some extent the behaviour of an organism becomes a radically new, 'emergent' characteristic not entirely predictable nor deducible from nature's simpler sub-biological laws. Again, in Aristotle's animism we find the first formalised attempt at the sophisticated thesis, wherein an organism's life consists in the inherent composition of psyche or soul through which the achievement and guidance of organic form comes about via a principle of teleological or final causation.

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[4] Sextus Empiricus, *Selections from the Major Writings on Scepticism, Man, and God*, S.G. Etheridge trans. Cambridge: Avatar Books, 1985, p.203.

The general heading of 'vitalist' includes these and other interpretations, all involving this central tenet of life as irreducible. One might think vitalism 'the mere working out of *hylozoist* detail' but in modern philosophy the scientific and theological *zeitgeist* plays a more prominent role and affects those details substantially. The fact of irreducibility allows an overlap between vitalist thinking and psychical realism. At first glance a world pervaded by psychical entities seems consistent with a world pervaded by an irreducible life principle, at least the pervasive character of life force in some forms of vitalism that is, notably those entailing an evolutionary cosmology. But vitalism in any rendering plainly commands more pre-philosophical credibility due to its being embedded in and supported by the structure of our ordinary speech and by many of our common maxims. We speak of *losing* our lives and becoming *lifeless* corpses, we ponder the possibility of *life* made in test tubes. On the other hand, the philosophical credit paid to vitalism fluctuates widely. Since the view in certain recent versions has been a revealing and influential antecedent to psychical realism specifically and to the process metaphysical tradition generally, we do well to compare vitalism and psychical realism with care to avoid the customary confusions over the former and the disingenuous criticisms that then target the latter.

Breakthrough support, outright demise, and qualified resurgence for vitalism permeate the history of modern science and philosophy, in many ways culminating in developments of the late nineteenth and early twentieth centuries. Here two main advocates of modern vitalist theories, 'emergent evolution' theories to be specific, the biologist Hans Driesch and the philosopher Henri Bergson, enter the strangely persistent atmosphere of controversy surrounding evolutionary thought and its bearing on speculative work in cosmology and metaphysics. Although the particulars of the relevant disputes are beyond our present concerns,[5] note that evolutionary cosmology and the resultant metaphysical intrigue encircling modern vitalist thought precedes and in some ways follows on from ongoing Darwinian debate. It is no mere whim in the history of ideas. From roots in Romantic reactions to Newtonian science found in Lamarck and Goethe, through questionable conjectures in Spencer, the later Darwin, and Thomas Huxley, and prior to contemporary quantum cosmological musings, we locate the contributions of Driesch and Bergson, identifiable as

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[5] For an overview of modern vitalism, see H. Driesch, *The History and Theory of Vitalism,* London: Macmillan, 1914; as related to Darwin, see L. Eisley, *Darwin's Century: Evolution and the Men Who Discovered It.* Garden City, NY: Doubleday, 1958.

exemplary statements of later day vitalism. Let it suffice to say that in the troubled history of evolutionary cosmologies - *troubled* in the main by hinging ardent metaphysical claims to continually evolving scientific data and theory - we find the most bothersome ambiguities and contentious claims arising in the romanticised and fanciful interpretations of science and nature. Such notions infuse the works of Driesch and Bergson. The former generally erred by deducing too much from scientific data, and so became the hostage to fortune with his ideas eclipsed in the end by advances in molecular genetics and elsewhere that offered comprehensive accounts of organic growth and rendered a vital principle superfluous.[6] The latter generally erred in turn by deducing too little from science and distrusting its ability to provide meaningful explanation, and therewith fell prey finally to criticism from the point of view of any and all beneficial scientific advancement.

As for the relevance of psychical realism, both Driesch and Bergson, and evolutionary cosmologists by and large, maintained an orientation that could be characterised as 'top-down' in their analyses of nature's fundamental constituents. A recognised plurality of individual existences, although real enough, was subordinate to the ultimate directedness and final convergence of the evolutionary process itself. A principle of pervasive force in the universe was believed to possess some degree of aim and organisation vital to the world's evolution. Thus these vitalists inherited and transformed animist ideas of immaterial souls and hylozoist speculations concerning a world soul, and put a Cartesian gloss on the former and applied an evolutionary interpretation to the latter. This emphasis on an underlying unity tended toward ontological monism, and required a perhaps unwarranted faith in the progress and convergence of evolution and in dubious teleological constructs. The psychical realist in contrast maintains a 'bottom-up' perspective for the most part,[7] subordinating any notions of the uppermost experiential entities of the universe to the actual reality of nature's fundamental constituents. The activity of these entities is regarded as open-ended, entirely contingent, and indeterminate regarding outcome, and the emphasis rather tends toward ontological pluralism.

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[6] Interesting for their neglect in the debate, problems do remain in understanding the relations of differing levels of description and explanation of organisms, such as those of psychology to those of biology, or those of biology to those of chemistry.

[7] Exceptions occur when dominating centres of experience, such as in animal minds, partly operate in top-down fashion, by influencing lower-level bodily sentience.

In the next chapter psychical realism *is shown* to lend credence to a re-introduction of teleological explanation, but not the trivial *external* sort according to which the principle of organisation of a 'world soul' is conceived as outside the world system itself, the final cause for order and development being the promotion of either human or divine well-being in its entirety. A modified *internal* teleology is suggested instead, derived from heuristic applications of teleology in contemporary physics and biology, with final purposes scaled down and consistent with a pluralism of finite experiential entities involved in their own contingent creative activity.

§ Insider Variants

Even within the general outline of the position hereby characterised as psychical realism a number of alternative labels have been employed, a good many in the literature specific to process philosophy alone. Whitehead was careful to disassociate his metaphysics from the phrase 'panpsychism' as commonly understood in his day (a term he never used) and was notoriously vague even in suggestions as to how pervasive a subjective element was required by his system.[8] As a result the occasional use by Whiteheadians of the phrase 'pan-subjectivity' to represent psychical realism is a problematic alternative due to the ambiguity that turns on the question of whether Whitehead's earlier formulations constitute a genuine case of an ontology of sentient entities or merely an emphasis on and development of the somewhat overlooked truth that all events have a point of view. 'Pan-subjectivity', along with 'pan-valuism' and 'pan-aestheticism', has been employed in reference to both of these positions in the relevant literature.[9]

'Psychicalism' is Hartshorne's preferred term for the doctrine, having arrived at it after enduring several misunderstandings when using 'panpsychism' in his early writings. Undoubtedly Hartshorne is the most tenacious expounder of psychical realism, putting forth dozens of arguments in numerous treatments, claiming it to be the most certain aspect of his philosophy.[10] The change in terminology to 'psychicalism' has proved difficult to get across because

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[8] A notoriety exemplified in Whitehead's response of 'yes and no' when the question was once put to him plainly. See A.H. Johnson, "Whitehead as Teacher and Philosopher," in *Philosophy and Phenomenological Research*, 29, 1968-69, pp.362-63.

[9] The nature and development of Whitehead's indisputably psychical realist philosophy is discussed by L. Ford and L. McHenry, forthcoming in *Process Studies* (1996).

[10] See especially, "Panpsychism: Mind as Sole Reality," in *Ultimate Reality and Meaning* 1,2, 1978, pp.115-129; "Physics and Psychics: The Place of Mind in Nature" in *Mind and Nature.* DC: Univ. Press of America, 1977, pp.89-96; "Panpsychism" in *A History of Philosophical Systems*, V. Ferm ed. NY: Riddell, 1950, p.442-453.

'panpsychism' has proved difficult to distance from his own related views. In his most recent manuscript for example, as yet unpublished, we still find Hartshorne's insistent tone when referring to an eminent scientist as, "another psychicalist - a term I prefer to panpsychism, since the latter term tends to suggest that anything you please, say a chair, is a sentient individual, which is nonsense."[11] In so doing Hartshorne does manage to put some distance between his philosophy and panpsychism as ordinarily conceived, but in opting for 'psychicalism' he fails to entirely avoid the associations with *psyche* and *soul* already mentioned, a point Hartshorne concedes in a sympathetic response to one critic's suggested 'pan-experientialism',[12] a suggestion never taken up, perhaps for obvious reasons. (The association-with-*psyche* objection holds equally for the phrase 'psychical realism' of course, but there are other reasons in favour of our chosen wording.)

Interestingly Hartshorne himself, in drafting his position in 1940 as the only tenable panpsychism worthy of consideration, had concluded, "Thus panpsychism is psychical realism."[13] But he may have dismissed that latter formulation as confusing in the context of the still quite live debate between the various realists and idealists writing at the time. In addition, Hartshorne proceeds to derive an account of the givenness and the conceptual reworking of deity directly from his analysis of psychicalism, indeed arguing that the two ideas as he sees them stand or fall as one. The term 'psychical realism' frees the doctrine from association with those perhaps more contentious commitments of Hartshornian psychicalism. Finally, by adopting 'psychical realism' emphasis is placed not only on the psychical qualities but also on the realism envisioned in this metaphysical picture, a prominent feature readily accentuated by Hartshorne who agrees that, "Panpsychism may thus be a wholly 'realistic' doctrine."[14] As we shall see, both aspects play fundamental roles in achieving a more universally acceptable process perspective.

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[11] C. Hartshorne, *Points of View*. forthcoming Chicago: Open Court, 1996.
[12] See D.R. Griffin, *Founders of Constructive Postmodern Philosophy*. Albany: Suny, 1993, p.10.
[13] C. Hartshorne, "Panpsychism" in *A History of Philosophical Systems*, V. Ferm ed. NY: Riddell, 1950, pp.442-450.
[14] C. Hartshorne, "The Synthesis of Idealism and Realism" *Theoria* 15, 1949, pp.90-107.

PART TWO
Perception and Psychical Realism

Intuition leads us to believe that the world is made out of a sort of stuff, some substance or another, something we might vaguely refer to as matter. For with our sense organs in good working order, taking account of reality under normal observational conditions, the world appears to be insentient and inert at rock bottom. True our ordinary reckoning of reality includes people and plant life and powers supposedly put out by invisible entities as told by the physical sciences. But by and large these are seen as fancy complications of what intuition tells us is something quite simple at the base of things. Backing all life and behind every force is a material base remaining the same throughout all change. We come across sticks and stones and the breaking of bones and naturally name them all insentient entities made up of smaller insentient entities. Thus we maintain an overarching belief in inanimate, inactive, basic ingredients that lie behind the more complicated entities and events we encounter, and our conscious and unconscious dealings in the world tend to contribute to the strength of that intuitive view.

Thus the case for psychical realism must begin by asking whether those intuitions and their basis in experience should be trusted to settle the matter. Our opening task then is to present arguments for the psychical nature of reality that challenge the intuitive basis of this common sense view. The strategies employed will come in three initial stages. Under the present heading, 'Perception and Psychical Realism', the first stage offers a closer look and an accurate reconception of the experiential foundation upon which intuition rests. Under the second, 'Reason and Psychical Realism', this sort of inquiry is shown to be as much a logical and metaphysical issue as it is an empirical one, through which a *reasoned* case can thereby be established, and against which counters that hinge solely on empirical evidence generally have little force. A sensible metaphysical synthesis of realism and idealism is then introduced that provides a framework aptly encompassing both the psychical and the realist aspects of the doctrine. These initial tasks accomplished, we proceed subsequently to more in-depth considerations of the principle forms of psychicalist debate in the final part entitled 'Argument Along Genetic and Analogic Lines'. Having secured a revised logical and metaphysical standpoint we then find that the typically dismissed analogic argument is more compelling and that the empirical evidence tends to complement the logical in support of the genetic one.

§ Base Intuitions and Basic Ingredients

In the previous chapter we established grounds for taking human subjective experience as the ultimate clue to the nature of reality. From accepting base intuitions that suggest nature's basic ingredients are essentially inanimate, to reasoning around intuition to a standpoint suggesting they are essentially experiential is a revolutionary shift in perspective. One must go from identifying experience as a clue to the truth to identifying it as the truth itself. But if we examine the foundations of our base intuitions, we can identify three separate components and in so doing go some way in qualifying that shift. We intuitively believe first that many ordinary objects are inanimate, second that ordinary objects are built up from a number of smaller ones, and finally that these smaller ones are likewise inanimate. The first two of these components present no problem for they are completely consistent with psychical realism. In addition we must recognise that these base intuitions rely primarily on the idea of atomism, and that psychical realism does not challenge atomism as such but merely what comprises the atoms themselves. Therefore the intuitive shift is not nearly as extensive as first appeared.

It is true that in ordinary experience we do derive a crude notion of atomism when we note for instance that all things can in principle be divided repeatedly into smaller parts. But to achieve a degree of certainty in this matter our everyday experience does little good without the assistance of science. And physics and biology have confirmed the supposition of atomism through their discoveries of atoms and cells. Still, science says very little regarding *the essence* of atomic reality, a point rarely seen in its full significance.[15] We have details concerning the few basic relational properties of atomic particles: energy, velocity, charge, spin, spatio-temporal location. But these are external properties, and as such are entirely compatible with the presence of internal psychical ones. There is no evidence - indeed there could be none - showing that the atomic and subatomic reality physics explores *must* be inanimate or insentient. Having defined psychical realism as embracing an infinite variety of forms and degrees of sentience, demonstrating a lack of any sentience whatever is theoretically impossible. Hartshorne recognises that,

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[15] A singularly important (if overlooked) fact for the psychical realist, its full significance to be spelled out in subsequent discussion of the argument from analogy.

> It is impossible to mention, and no one has mentioned, any fact which physics now asserts about the pattern of individual occurrences which contradicts the supposition that individuals as such are sentient creatures.[16]

To assume that science has revealed a universe composed of dead, inert stuff - *mere matter* - following purely mechanical laws of motion applied from the outside is completely unwarranted and gratuitous. In actual fact the notion of mere matter is a totally opaque concept, something Whitehead referred to as 'vacuous actuality' and rightly treated as nothing more than an abstraction. Science just does not say anything about it at all. Whitehead never lost sight of the incompleteness implied in a scientific materialism.

> On this theory, all that there is to be known is that inexplicable bits of matter are hurrying about with their motions correlated by inexplicable laws expressible in terms of their spatial relations to each other.[17]

These considerations begin to diminish the intuitive pull leading away from psychical realism. We manage to maintain the common sense notion that many - though by no means all - of the macroscopic objects around us are insentient, but recognise that at bottom this view relies on an atomism which upon scrutiny leaves open the possibility of sentient entities at the microscopic and momentary levels. Having removed the necessity of insentience from the commonly held atomistic outlook, we turn now to other contributions perception makes in the development of anti-psychical intuitions.

§ Illusory Unities and Individual Ingredients

Our senses furnish us with information that we rely on in making countless perceptual judgements. It would be absurd for a person to report that after having carefully examined a chair, the fact of whether someone was sitting on it during the examination remained uncertain. We would immediately wonder if the conditions of the examination were such as to allow for some less than obvious discrepancies between the sense perceptions on the one hand and the facts of the matter on the other. For one, the perceptions might have been confounded by point of view. Duchamp's Dadaist chair for example was only seen from underneath having been glued to the ceiling. Or the perceptions might have been mislabelled due to inappropriate scientific acumen. Perhaps the chemical make-up of the chair (and its occupant) were probed precisely, in microscopic detail, but in exclusion of the obvious. As to the facts of the matter,

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[16] C. Hartshorne, *The Philosophy and Psychology of Sensation.* Chicago, Univ. Press, 1934, pp.268-269.

[17] A.N. Whitehead, *The Function of Reason.* NJ: Princeton Univ. Press, 1929, p.50.

the chair may have been the size of Idaho or the person the size of a fly, or the examination may have been carried out with binoculars from a helicopter. The point is that common sense assumptions are left unquestioned in all such cases and faith in perceptually grounded intuitions and judgements left unshaken. We immediately look to peculiar circumstances for an account of any peculiarity.

Perception plays a most influential role in the logical and metaphysical colouring of our intuitions. Yet ordinary sense perception, the source of so many intuitions, is largely an indistinct affair from which we habitually simplify the given data. A spinning wheel blurs into a motionless disk at high speed, a dive into ice water jolts with but one overwhelming chill, a symphony orchestra performs a simple melody. All this occurs while the sense doors and brain take in all the twirling spokes, each freezing droplet, every instrument played. When reading we attend to meanings more than their vehicles the words, still less the countless characters comprising the words. And endless introspection would not uncover the half of it in any of these examples. All perception simplifies sensory events enormously, even to the point of prohibiting introspective retrieval. If perception and introspection cannot keep hold of the real spokes, drops, tones, and words, we ought not assume clear-cut success when trying to grasp reality's finer parts by these same means. Hence we are right to at least question interpretations naturally made from these sources of intuition about the world's basic ingredients.

From the foregoing it follows plausibly that we are not normally acquainted with the real individuals of which the world is comprised even when perceptions seem to approach the veridical. This fact is likewise substantiated by the way in which science supplements ordinary sense perception. We see rooms full of furniture and gardens of flowers for example, not the billions of molecules and cells that comprise them. Modern science has greatly improved human perceptual potential through technological advancement, and those improvements have clearly shown the inert quality of the microscopic world underlying the macroscopic to be illusory. We now know that even the unities encountered uncontroversially by our ordinary senses - the furniture, the flowers and all the rest - are simply products of blurred perception. By penetrating these illusory unities, the absolute exclusion of sentience from entire portions of the world is again shown to be groundless. A moment's reflection reveals that if the world of ordinary perception were at all like the world revealed by our more precise scientific observations - if we were forever confronting its active,

dynamic, richness - the content of our intuitions about reality would change a great deal indeed. Never mind that *philosophical* speculations about how an ordinary object appears in perception are often cause for wonder, Russell reminds us that, "sober science, scarcely less wonderful, tells us it is a vast collection of electric charges in violent motion."[18]

Furthermore, these same and related advances in science have clearly challenged the common opinion that things in the world divide naturally into the scholastic categories of animal, vegetable, and mineral ingredients. Fixed lines of demarcation between the so-called animal kingdom and vegetative life seem to disappear with increased perceptual probing. Focus on the lower stages of development and nature does not appear to leap from the one to the other, but rather shows a gradual increase in degree of complexity. Similar suggestions have likewise been put forth that question presupposed dividing lines between vegetative and mineral existence, a point taken up in detail in the final section of the present chapter. Hence the scientific and the philosophical realms of investigation, along with our ordinary sense perception, all play their part in the challenging of base intuition.

One implication is that the relation between ordinary perception and scientific observation is not nearly as clear-cut as many theorists would insist. We *subjectively* enjoy watching sunsets, tasting wines, listening to operas while we *objectively* acknowledge corresponding light wave patterns, chemical constitutions, vibratory frequencies. It is not simply the case that a rich world of lived experience is the real one and a deprived world of science but empty abstractions. But neither is it the case, as we have already seen in the last chapter, that scientific data are the realities and their sensory appearances but subjective indicators of them, and only real in as much as experiences are real. As we have seen, both ordinary perception and scientific observation impoverish and abstract from features of reality. In addition, they both also enrich and concretise those features. We feel Hamlet's plight and a mountain's majesty though neither as such are given in experience. We appreciate the marvels of modern medicine and concern ourselves with threats of nuclear sabotage all on account of the relevant theoretical constructs that science too endows on its observational data.

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[18] B. Russell, *The Problems of Philosophy*. NY: Oxford Univ. Press, 1980, p.6.

Hartshorne has surmised that perception involves a certain 'abstract concreteness' and science involves a certain 'concrete abstractness'.[19] Philosophy we can infer ought to involve a degree of both. Perception is in essence concrete because it embraces all the basic categories of reality (including experiential qualitative ones), yet abstracts in its neglect of most of the true individuals within these categories. The essence of science is abstract by virtue of its methodological exclusion of those categories (the same experiential qualitative ones) that are not intersubjectively available for measurement, yet is concrete in its ability to uncover what would be hidden individual instances of the categories that it does utilise. Hartshorne's suggested philosophical response is to hold that in cases when ordinary perception displays experiential qualities then those qualities do exist, and in cases when perception does not display individuals as bearers of experiential qualities but science uncovers evidence of them, then those further qualities as revealed scientifically do exist as well. For once we transcend our perceptual powers all we have left to go on are scientific inferences from those powers. The relevance for present purposes is again that the senses, the sciences, and the reasoning applied to both, all seem to challenge the authority of base intuitions regarding the psychical side of reality.

Just how much is in the argument that our intuitions wax and wane in accordance with philosophical conjecture and fluctuating perceptual powers? It seems clear that the blurring of ordinary sense perception and the lack of evidence of inert matter in scientifically assisted perception does not by itself show that reality is psychical as we have defined the term. At most it reveals that reality - the small sample under investigation - is in a state of ceaseless motion. What is more, in attempting to isolate the logical treatment our perceptions undergo in the forming of intuitions, it is not clear how a move that replaces the source of that intuitive basis with another helps at all. It offers no account of that basis but merely another example of when it occurs, and at any rate insight so obtained would be undercut by the regress this move would allow. Scientific progress will not cease in order to facilitate intuitive accuracy. What is really at issue here is that furniture and flowers and so on do not ordinarily appear to think or to feel, while entities like persons clearly do. Any perceptual insight into the molecules and cells that they are composed of may challenge our intuitions about molecules and cells but still leave intuitions about the inert nature of the

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[19] For a developed discussion of the ideas expressed in this and the previous paragraph see, C. Hartshorne, "Perception and the 'Concrete Abstractness' of Science." forthcoming in *Points of View*. Chicago: Open Court Press, 1996.

things we perceive unhindered. It is the logic behind the intuitions we hold about *these* entities for which the psychical realist must provide an account.

We can turn for help to Leibniz who suggested that macroscopic inanimate objects may be analogous to crowds, and that the distinction between crowds of individuals and compounds of individuals is an important one. Although the difference between that which is sentient and insentient appears to be an absolute difference and not merely one of degree, this difference is easily explained by demonstrating how individuals can be combined in two distinct ways. In a compound individual such as a living animal or a living cell there is a dominating level of experience which turns the subordinate level experience, of which it is comprised, into a single sentient individual possessing a degree of unity that allows it to take account of and respond to its environment as a unified whole. In a crowd of individuals such as a pebble or a planet there is no such dominating experience. The highest level of experience in these cases is just that of the molecules of which they are comprised. Without a dominating sentient centre the various movements cancel each other out, so that as a statistical effect pebbles and planets on the whole appear to behave passively and predictably. In this manner psychical realism is compatible with that particular intuitive basis of our perceptions. That seemingly inert and insentient class of objects we perceive is made up of crowds while the apparently psychical element is for the most part composed of compounds of individuals.

It may be that this development of the psychical realist account of reality does not amount to much if no further development is offered explaining just how high-level centres of experience arise and come to dominate lower ones. Analysing this topic is quite an involved undertaking and comprises a substantial portion of the process metaphysics to be introduced in the next chapter. At present however our emphasis is on the Leibnizian principles of nature being composed of active individuals, and of our perceptions of mere masses of inactive continuous stuff as really perceptions of compounds of active individuals far too similar and insignificant, taken one by one, to register distinctly on our senses. With the making of this distinction we end our analysis of the influence ordinary perception puts on our psychical intuitions. The importance of the distinction is brought in to bear on two additional principles deduced from it that serve as inspiration for subsequent discussion of analogic and genetic arguments. For one, Leibniz believed that our own active subjectivity or present experiencing is the only genuine individual we experience directly and distinctly, and secondly that

our only hope of comprehending nature is thus by conceiving it as a vast society of active individuals, each having some analogy with ourselves as sentient entities. These further principles as we shall see pave the way for envisaging a full fledged psychical realist understanding of reality. From the standpoint of these revisions we now turn for further support of psychical realism to other more fundamental perceptual considerations.

§ The Radical Perceptual Realm

This final section merely introduces a set of ideas that pertain directly to process thought and are more fully developed in the next chapter. Notwithstanding the manner in which they are incorporated elsewhere, these ideas tend to back the psychical point of view independently, and so a passing mention of them here is warranted. Owing in part to structural restraints of the work as a whole, much of our discussion thus far and to come divides the idea of process from the case for psychical realism somewhat artificially. Be that as it may, we proceed to the radical perceptual realm.[20]

Although ordinary sensory perception directly acquaints us only with appearances, we naturally maintain a belief in the existence of an external world. But if sensory perception, refined by science or otherwise, is our only source of perception, then it follows that such a belief is unjustified. No valid inference can be made from the one to the other, from appearance to reality, without some additional means to back up our belief in something beyond that sensory input. So there must be another basis supplementing ordinary perception to account for it and to ward off the resultant dilemma of extreme scepticism. Whitehead and Hartshorne have emphasised that the general principles by which we live our lives in a world and interpret our experience of that world are derived from a form of perception more basic than sensory perception.[21] Arguably this radical perceptual realm can also supply additional evidence for the psychical nature of reality.

This primordial form of perception is based on the crucial fact that in experience we intuit or grasp or feel something or other as pre-cognitive given influence, objectified relative to that particular subjective experience. We take in

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[20] 'Radical perceptual' used to echo James' not unrelated doctrine of radical empiricism.

[21] For overviews of this central tenet of their philosophical projects see, A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978 (several citings listed in index), *Adventures of Ideas.* London: Cambridge Univ. Press, 1933, pp.225-228, and *Symbolism: Its Meaning and Effect.* NY: Capricorn, 1927, pp.30-49; see also C. Hartshorne, "Whitehead's Revolutionary Concept of Prehension" *Creativity in American Philosophy.* Albany, NY: Suny, 1984, pp.103-113.

something of our surroundings in a non-conceptual and subconscious way, in a manner of grasping without consciously thinking or knowing that we are doing so. Whitehead aptly coined the term 'prehension' to describe such influence, for he saw that it was a form of apprehension, but without comprehension - an apprehension minus any 'ap' so to speak. "By this term, blind physical perceptivity is meant... The physical world exhibits itself as a system of organisms arising out of concretions of blind intuitions."[22] In addition, because influence felt in present experience must originate prior to that very experiencing of it,[23] this experiencing-experienced relation also has a crucial if often slight temporal dimension. There is thus a one-way, asymmetrical dependence that holds for experiencing relative to whatever intuited given influence is being experienced. If that which is experienced exists prior to the experiencing, then it effects the experiencing, whereas the experiencing by being later does not effect it.

The temporal spread in experience and the sort of dependency relations it entails have much to do with our ability to recognise the radical perceptual influence of prehension. Recall Whitehead's insistence, in the examination of subjectivity in the last chapter, that evidence relating to every variety of experience must be considered in an adequate account of it: experience drunk and sober, sleeping and waking, intellectual and physical, experience anticipatory and retrospective, dominated by emotion and under self-restraint, normal and abnormal, and so on. With some scrutiny one can uncover the common prehensive input characteristic of radical perception among all these forms and ranges of experience. It is there as intuited given influence in these varied experiential modes, always present and forever informing the experiencing subject, a universal variable exemplified to some degree in all of them. For human subjects the most telling instance is our knowledge of our own immediate past experience as registered in our 'total bodily event', with immediacy identified not by past days or hours or even minutes as memory would have it, but by the directly preceding moments. Here we find a wealth of influence commonly unacknowledged by thinkers commonly failing to acknowledge how *the body* feels in experience. Not to be confused with the feelings registered by inspecting bodily detail, prehension in its basic form refers

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[22] A.N. Whitehead, "Time" in *The Interpretation of Science*, A.H. Johnson ed. Indianapolis: Bobbs-Merrill, 1961, p.241.

[23] A vast and persistent literature pertains to this point, from the puzzling 'pure thinking of thinking' in Aristotle's God to the puzzling 'immanent awareness' in Husserl's phenomenology, with the many takes on Descartes' *cogito* coming somewhere between. Further argument is presented in discussing process temporality in the next chapter.

to the vague, inarticulate feelings that mark the entire experience with a sense of having emerged from a particular immediate past. For it is here - in the immediate bodily feeling of the immediate moment before - that we discover ourselves connected to a world around us, discover a way around our solipsistic selves, and from there we may go on to discover that the surrounding world is psychical in essence.

It is befitting to consider sexual pleasure. It answers to every side of the varieties of experience listed, and then some. And although we are after a form of nonsensuous perception, sex presents an ocean of feeling overflowing in obvious prehensive depth. Present sexual experience is endowed with a fusion of the immediacy of prior moments which enter into it without any perceptible medium to intervene between previous feeling and present experience. The sexual excitement *here right now* is embedded in that which lingers on from *then just there*, adjusting it to other upcoming influence, deflecting it to further purpose, modifying it to moving new value. The influence is manifold and detail not to the point. We engage that half second or so of past pleasure as it were by carrying it into and energising present arousal with its charge. We *re-feel* to some degree the previous feelings involved.

> The present moment is constituted by the influx of *the other* into that self-identity which is the continued life of the immediate past within the immediacy of the present.[24]

One may object that the example is unclear, that the abundance of sensory input in sex makes a mess of however prominent the prehended portion underlying the experience might be. Consider then the feelings that accompany us when first we enter and sense a hostile environment. To be sure, we do well to pay attention to possible warnings in the way of sensory perceptual cues. Yet there is always another dimension of information available, derived in part from the pervasive affective tone of the place and in part from our bodily reactions to that tone. As before, the prehensions embrace an unlimited amount of influence, and how far the subject can consciously detect the prehended material depends among other things on the level of consciousness the experience attains. The grasp of a prehension is a feeling of previous feeling and only in special cases is it also a thinking of or knowing of that feeling (or that thinking). Intuited influence is felt, whether or not known, explicitly judged, theoretically situated.

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[24] A.N. Whitehead, *Adventures of Ideas*. Cambridge: Univ. Press, 1935, p.226.

The accumulative build up of underlying emotional material testifies to this fact in the hostile environment case. When anger is in the offing, first comes a spark and then a fire; if despair is at hand, first the lightning and then thunder and rain. As present experience registers (via sensory data and cognitive response) an ambience that is growing in aggression, the immediate past bodily input may gain in directed momentum, should its blend with the tone of present feeling be quite close and foreboding. Under such circumstances there is a literal truth to describing the atmosphere as so tense that it has one quaking. Hartshorne considers the simplest explanation to be that what one inherits from this type of prehensive input is previous feeling, but much of it is at a level below that of complex human feeling.

> I hold that bodily feelings, and this in a sense includes all sensations, are directly given to us, not as simply our feelings but as subhuman feelings (perhaps cellular, molecular, or something in between) in which we directly but indistinctly participate. And I hold that this participation is the primary contact with physical reality... The realities may be inside our skins, but physical nonetheless.[25]

Note that Hartshorne retains the notion of the physical in this passage despite the claim that the realities are feelings and therefore psychical. On his view there is no contradiction entailed in the combination. This much granted, the positing of a further insentient level of being 'out there' in the physical world begins to appear superfluous. If what affects us directly can by and large be the result of psychical entities, then the move from this established experiential subject that now stretches at least as far as previous feelings and toward a further *insentient* world beyond it requires more argument. Without that argumentation the simplest hypothesis suggests we stay with the psychical as known through experience, especially if it proves to serve. On this point Whitehead is quick to concur.

> ...on that hypothesis the direct evidence as to the connectedness of one's immediate present occasion of experience with one's immediately past occasions, can be validly used to suggest categories applying to the connectedness of all occasions in nature.[26]

Hartshorne also makes a point of including sensations in this level of bodily prehensive given. Indeed sensory input likewise presupposes a direct prehensive relation to the body just as with the introspective feelings of sexual excitement and fear. This is evident if one keeps hold of the temporal dependencies involved

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[25] C. Hartshorne, *Insights and Oversights of Great Thinkers.* NY: Suny, 1983, p.273.
[26] A.N. Whitehead, *Adventures of Ideas.* Cambridge: Univ. Press, 1935, p.221.

in experience. At times we note the slipped incision from a kitchen knife just prior to suffering the pain, we register the taste of a chilly pepper a moment before enduring the heat. Even in the least phenomenologically available case of visual perception no experienced influence is ever simultaneous with the experiencing of it. Although we never feel what amounts to being an extremely minute temporal spread, the seeing of a sunrise presupposes that the set of dominant experiences that constitutes the perceiving subject first prehends those brain cells that have at a slightly earlier time received the visual data from the eye, which the eye in turn previously received from the relevant light rays. As for the 'connectedness of all occasions in nature' that Whitehead alludes to, this is brought out most clearly when perceived objects are far away. Consider the stretch of time between the sound of thunder one hears after the flash of lightning seen, or the visual experience of what the sun had in fact shone forth some eight minutes earlier. The same immediate memory factor is always present, and as experiencing individuals ourselves we are located at the end of a continuum. "Memory is a perception," Whitehead explains, "relating to the data from some historic route of ultimate percipient subjects M1, M2, M3, etc., leading up to M which is the memorising percipient."[27] Both sensory and introspective experience are but forms of perception whose antecedent influences are in the more immediate past than those of memory as ordinarily conceived. Hartshorne has termed these 'impersonal memory experiences' as opposed to the personal memory experiences we carry with us of say our childhood playground days. It follows that in ordinary personal memory we have another clear example of the prehensive character of experience. In the act of remembering, our present experience prehends by way of re-feeling some previous occasion of experience that is brought to mind. The given influence intuited is here made up of past experience distinct from the present remembering one, yet this constitutes another factor incidentally taking us some way toward grounding belief in an external world.

Naturally we are inclined to seeing memory as a present experience that requires previous experiences as its subject matter. Likewise it is natural to recognise that the previous experiences did not require the present one, nor at the time they occurred were they in any way related to it. Here again we notice what Peirce, Whitehead, and Hartshorne all consider to be the one-way

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[27] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.120.

dependencies pervasive in reality.[28] To see in our examples that prehensive input from memory, from sensory experience, and from feeling tone work in the same temporally dependent manner is an initial step toward envisaging a world which in its entirety consists in these one-way relations between wholly psychical entities.

One qualification is in order, first put forth clearly by Leibniz. Given his analysis of crowds of individuals and compound individuals, Leibniz insisted that the only true individual we ever encounter distinctly is that of our own present selves. We have seen however that due to the fact of prehensive influence we encounter other occasions of previous experience, whether our own or - to take up the now more defensible inference - those occasions constituting an external world. True, it is entirely from the experiential input of this one individual alone that we must come to justify our believing in something outside of that individual. But since it now seems plausible, given radical perception, to view that something as constituted by past experiences as grasped in prehensions, the only valid conclusion so far that we can make as to the external world is that our experience of it is solely of psychical aspects. To repeat, any further inference such as the scientific one from this experiential level to a realm of insentient stuff beyond it standing in wholly external relations requires more support. Whitehead sums his position.

> In this sketch of an analysis more concrete than that of the scientific scheme of thought, I have started from our own psychological field, as it stands for our cognition. I take it for what it claims to be: self-knowledge of our bodily event. ...This self-knowledge discloses a prehensive unification of modal presences of entities beyond itself. I generalise by the use of the principle that this total bodily event is on the same level as all other events, except for an unusual complexity and stability of inherent pattern.[29]

Be clear nevertheless as to what forward move we hereby make in advancing the case for psychical realism. As compound individuals ourselves, we do not have direct access only to human feeling through prehension. Of course in introspection (which is really retrospection) the given influence is previous *human* feeling, but in present human feelings we re-feel for the most part feelings of subhuman bodily constituents. Though following Leibniz, this is done without distinctness as to the individual constituents. "All individuals apparent

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[28] For an overview of their positions consult chapters on Peirce and Whitehead in C. Hartshorne, *Insights and Oversights of Great Thinkers.* Albany, NY: Suny Press, 1983.
[29] A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.73.

to the senses are compounded of numerous much smaller individuals."[30] Human sensation is human awareness of such subhuman feelings. The psychical aspects of our world, the presence of sentience as known through experience, are of these two distinct types. Whitehead's concept of prehension furnishes novel and forceful insights that bear witness to at least a broader margin of psychical reality as directly experienced, if not to advancing the cogency of the idea that reality is psychical through and through. With these opinions we complete our treatment of perception and psychical realism.

PART THREE
Reason and Psychical Realism

We now proceed to the logical underpinnings of commonly held beliefs that tend to prevent the taking on of a psychical realist perspective. By way of building on remarks about intuitions and perceptual influence put forth in the previous section, careful reasoning is here applied to some of our most basic assumptions to bolster the case for envisioning a psychical world.

§ The Extended Nature of Mind

One such view embedded in our ordinary notions of the physical and the psychical, of matter and mind, is that we place them *prima facie* at odds with each other, having distinct sorts of existences, occupying separate logical spaces. This view, maintaining an all but transparent influence on our intuitions, originated in the Cartesian doctrine (derived from Augustine) of inextension as a criterion for the psychical. This lack of spatiality in psychical entities then requires something additional, namely the wholly physical entities of matter to account for the fact that there is spatial extension. Hence extension in contrast becomes the criterion for the physical. Yet, strictly speaking, to be inextended means to be nowhere in the spatial system of things, whereas extended entities are always somewhere (or everywhere) throughout one or more spatial regions, located more or less where their causal conditions and consequences are located. Since space however in the opinion of most thinkers today is not a thing in itself but is only relational, to be in a region can only mean to be directly influencing and directly undergoing influences in that region, to be playing some part in its causal nexus. An extended entity is spatio-temporally closest to those things which most immediately influence or are influenced by it. Now the point regarding the relational essence of space requires more argument of course,

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[30] C. Hartshorne, "The Compound Individual," in *Philosophical Essays for A.N. Whitehead*, F.S.C. Northrop ed. NY: Russell and Russell, 1936, p.193.

given only indirectly in the comparative influences of minds over spaces considered next. It was Leibniz who amongst others argued that the concept of space was relational. Is the difference between two books in the first or the second book, or is it in the space between? If one book is taken to Australia has the difference grown or just the space? We get a hold of space through relations of things in it, for without things there would be no such space. Perhaps the point stirs us most in the Leibniz-Clarke correspondences in which the question is posed, "What would happen if the entire universe were moved over one foot?"[31]

At any rate, if psychical entities on the other hand were inextended, they would have to be nowhere at all, which is quite strange. Human minds for instance are evidently not nowhere because if they were, there would be no need to go to a particular region or communicate with a particular region in order to influence or to be influenced by them. There is no practical difference between being capable of exerting or receiving influence in a certain region and being in that region. This is clearly shown when one considers regions remote from the person giving and receiving influence. Philosophers in Britain have little to do with Munich, but even less with Mongolia and far less with Mars. For human thought to produce a result upon the world the chain of influence must begin somewhere in the region of the human thinker; for the world to influence the thinker the chain must likewise terminate in that same region. Thus minds in humans are somewhere in the region of the body, our experiences somewhere in our bodies. As Hartshorne points out,

> We explain the body itself, as just the privileged field of reaction for a mind... for a mind needs a privileged field of reaction upon other minds, a steady social environment, if it is to have any steadiness of character itself.[32]

A chain of influence is a useful image for demonstrating the relevant spatial character. Perceptions for example are the result of what is perceived, and the more nearly immediate the perceived is in time perception, the closer spatially is the perceived to the act of perceiving. We can conceive the objective content of what is perceived, that is to say the given, as previous experience (one's own and others') influencing present experience (one's own). Remote memories on this view log spatially more distant experience arriving to influence us via countless links in a causal chain while present perceptions log experience influencing us

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[31] See Leibniz, *Philosophical Writings*. London: J.M. Dent and Sons, 1973, pp.205-238.
[32] C. Hartshorne, *Creative Synthesis & Philosophic Method*. IL: Open Court, 1970, p.107.

that is comparatively close at hand. Note, incidentally, the similitude of this view to the pragmatist writings of William James who, in grounding his theory of meaning, posited analogous chains of influence, a position James characterised light-heartedly by insisting that in a sense one does not know the meaning of 'tiger' till one actually gets over to India and bags one.[33] Our inability to assign precise shapes and sizes to spatial experience merely reflects the fact that experiences are brief and ever-changing. It is wrong to conclude that an entity, by not being obviously and clearly spatial, must be absolutely nonspatial; we make no such inference when it comes to aromas or X-rays. Again, because subjective centres of experience are in part constituted by the objects they are aware of, comprised partly of what is objectively given, experience is essentially of other experience, essentially social, and cannot but define a network of influences made up of spatio-temporal causal relations. Accordingly Hartshorne adds,

> To deny space to minds is to deny mutuality, sociality, and reciprocal independence to them. But why? In the era of relativity physics the concept of inextended mental events is peculiarly inappropriate.[34]

The rejection of mind as inextended then is our first logical corrective in laying the foundation for psychical realism. If mind is inextended, then the truism *something is extended* entails that there is something besides mind. But if mind is extended, then the truism does not entail that there is anything besides mind. It would be manifestly absurd not to grant the reality of extension, but doing so and demonstrating mind to be extended leaves open the logical possibility that there may yet be *nothing but* mind. The psychical need not be the non-physical, but only the not merely physical. We can accept as true the obvious idea that being extended in a certain way is a truth about something, while maintaining that this does not entail saying that it is ever the whole truth about something. We see that an accurate depiction of experience encompasses matter as the structure of its influence, but leaves open the question of there being other sorts of matter. So we have not as yet established the case for reality as psychical though revising our picture of experience in this manner is a step in that direction.

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[33] See W. James, "The Tigers of India" in *The Meaning of Truth.* Cambridge: Harvard Univ. Press, 1975, pp.33-36.

[34] C. Hartshorne, "Panpsychism: Mind as Sole Reality," in *Ultimate Reality and Meaning* 1,2, 1978, pp.118-119.

§ The Psychical as a Metaphysical Category

Another manner of reasoning for the psychical involves the notion and use of metaphysical categories. In doing metaphysics one attempts to express what all possibilities of existence have in common. If there be such supposed aspects common to all existence, metaphysical categories are what designate them. While empirical statements are true contingently, metaphysical ones are true necessarily, for a metaphysical truth does not itself stand for a fact but for a principle, one which obtains for all facts actual and possible. "Metaphysical truths," according to Hartshorne, "may be described as such that no experience can contradict them, but also such that any experience must illustrate them."[35]

Following on from the point that mind is extended as argued in the last section, a case can be made for holding that *experience* as such is a metaphysical category, therefore opening further the possibility that everything extended in fact experiences. Now experience cannot be a metaphysical category if we limit it to human or even to all animal experiences. These are not *a priori* but empirical ideas for which we could easily find examples of phenomena that failed to illustrate such experience and some that even contradicted it. Hartshorne insists that,

> We must ask if there are not dimensions or variables within our experience whose range of possible values in principle infinitely exceed the range of these values found in our, or even in animal, experience.[36]

Restricting experience to that possessed by humans and animals is arbitrary because even within our experience we can uncover dimensions that have a range that in principle could exceed that of the values of experience as we know them. Evidence for our experiential range is found among other places in the many differences between deep sleep and alert wakeful experience. (Recall Whitehead's cataloguing the infinitely various components of experience above) It is logically possible to apply the dimension of experiencing to all extended entities that are truly individuals. There are no observations that we have made or could possibly make that could prove the complete absence in a cell or a molecule or even in an atom of that which we mean by 'experiencing' when we refer to human beings. We can generalise the term - both the concept and the behavioural criteria identifying it - without generating any obvious absurdities, and there is no apparent advantage to restricting its range of

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[35] C. Hartshorne, *The Philosophy of Charles Hartshorne.* LaSalle, IL: Open Court, p.570

[36] C. Hartshorne, "Panpsychism: Mind as Sole Reality," in *Ultimate Reality and Meaning* 1,2, 1978, pp.119.

application in such a way that some actual or possible being would fall outside its dimensions. As alluded to when defining the doctrine, the generalised criteria might include self-initiated activity, the unity of that activity, influence of the past and the environment, or something expressive of anticipation, desire, purpose, and satisfaction.

Again, the fact that we can generalise experience in this fashion supports but does not prove the speculative possibility that psychical realism is true. But it does succeed in shifting the onus of proof somewhat by once again nudging our intuitions. Since this sort of generalisation is possible, the notion of wholly insentient or inert entities or processes loses some intuitive pull, for sentience as a metaphysical category offers an appealingly universal picture compatible with our treatment above of mind as extended. The psychical on this interpretation is not a special kind of reality but is reality itself or as such. To absolutely exclude sentience from any part of reality, insists the psychical realist, is to convert the *not easily knowable* into the *known not to be* - to mistake low intensities of experiencing for no experiencing at all. This leap requires argument, especially in light of the fact that a tenable metaphysical category of sentience is in the offing. It is easy to know that atoms do not experience as human beings do, but then neither do monkeys nor even our new-born babies experience as we do. If we extend the term in these cases, on what grounds do we refrain in others?[37] Having now shown that universal sentience is possible, we move directly on to the notion of insentience to see if it in turn may be impossible.

§ The Notion of Negative Facts

A third way of reasoning for psychical realism that offers an answer to the question just posed is based on the problematic notion of negative facts. To contend that an object is inanimate and inert is not to say what it is but to say what it is not. We say that it is not feeling, not living, not thinking nor remembering, not enjoying nor suffering, and so on. As noted in the previous chapter, although experience is difficult to define, we do know it directly. We *undergo* experience and we are acquainted with a wide variety of its forms. We could only know of its absence through the type of negative facts suggested above. But a negative fact can never be completely negative - a vacuum in reality - but always implies or involves a comparison with certain positive facts from which we become aware of the negative ones. To understand why this is so,

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[37] This line of reasoning is developed further in the final part of the present chapter.

imagine a black box the contents of which are unknown. No amount of negative information, that is facts about *what is not* in the box, would provide certainty as to *what is* in the box. There is no positive evidence however for the absence of experience in physical objects.

The force of this argument hinges on the truth of there not being any positive facts to substantiate the claim that insentient entities exist. Two candidates, extension and predictability, arise as obvious objections. But extension serves only if we accept the Cartesian doctrine that the extendedness of an entity, being incompatible with experiencing, is a positive fact whose presence proves that experiencing is absent. We have already argued that since experience has social influence, those relations give it a regional spread and hence a spatial dimensionality or extension. And as for predictability, there is no reason to suppose that experience cannot exist in a form so elementary that prediction may approach absolute success. At any rate, the reciprocal point is pivotal here, that the universal predictability of nature is no longer accepted as a truism of contemporary science anyhow. Neither extension nor predictability seem capable of providing the needed positive fact to show that an individual entity can be known to be insentient.

Yet there must be *some* entity that does not experience, otherwise the concept would be generalised out of all sense in that by excluding nothing positive, it would not be genuinely affirming anything. The principle of contrast must be honoured somehow in order for the term to refer. This objection will be dealt with in some detail in discussing the analogic and genetic arguments, but to put it briefly, the contrast could come about with the variance of behaviour that groups of sentient entities may display in accordance with the different ways their sentient members might be organised. The positive attribute of experiencing then meets the need for a contrast and thereby maintains its ability to refer, while no positive facts present themselves to flesh out the absolute negations implied by the notion of inert, inanimate entities, an utter absence of experiencing. Hence a psychical component of reality is a fact in some cases - those that clearly demonstrate the presence of experiencing - and it cannot be known to be false as a fundamental interpretation in any case.

§ The Capture of Natural Causality

The psychical realist has something worthwhile to say on two separate causality scores: the Humean, *all too Humean*, predicament contemporary debate has inherited, and the fact and nature of causally emergent properties. The two issues are not unrelated, and the psychical realist resolution of the first suggests the finally dubious explanatory potential of the second. In both cases the outcome lends further support to the psychical standpoint.

The doctrine of psychical realism offers a vital solution to a philosophical enigma regarding causality. First introduced by David Hume in his well-known reflections on the topic, the problem has remained prominent thereafter in contemporary discourse in metaphysics and the philosophy of science. In a word Hume denied any basis for commonly held intuitions concerning causal influence. Ever since he pointed out that all we ever observe is one thing (the cause) followed by another (the effect)[38] but never even a glimpse of causality itself, philosophers have puzzled over the question as to whether there is any basis at all for attributing causality to natural entities. Hume claimed that our idea of causal necessity is but an illusion resulting from observed regularities and correlations in nature. We never actually detect any necessary connections of cause and effect.

In human experience however, our responsiveness to that which appears as memory or perception surely indicates a degree of causal influence,[39] for memory (and perception as shown above) *just is* influence of the past on the present. To be fair, the point Hume overlooked about a memory component in present experience is far more subtle than first appears when stated in such elementary terms. It rather marks the main difference in empirical grounds between those who do and do not recognise radical perceptual influence. Hume makes much of the fact that a present memory impression is not *the memory of* an impression in the past, but is simply another present impression. True enough, as far as it goes, but what is missing is the recognition from a careful introspective analysis of experience that a present impression is the sum of an experienced process of taking up and sorting through past prehensive influence

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[38] The philosophical literature on causality is extensive and our treatment here confined to analysis of the commonly held assumption that causes precede their effects in time.

[39] As alluded to earlier, *that which appears* are really past experiences for us, though most often experiences in the *very near* past.

objectified in present experiential response. And Whitehead sees that Hume himself presupposes as much.

> Hume's 'faint copy' is the image in the present, but its equally present character of being a copy arises from its comparison with the objectification of the past which is the true memory.[40]

Taking the nature of our experiential givens then into account allows us to transcend the abstract 'this, then that' of causality to see that our present experience is shaped in part by *retrospection* of past events. In this way we gain an experiential basis of the causal structure connecting the asymmetrical feeling of other (past) feeling to our present experiencing. That one subtlety regarding the memory component of present experience makes all the difference in this case. On the one hand, since in personal memory we have givenness itself as a given, or in other words the givenness of past cases of givenness, we thereby provide an impression of causality in the form of impressions of past impressions. On the other hand, in the impersonal memory that constitutes sensory and radical perception, we have no reason not to extend the analysis and recognise similar causal impression components at a more basic level.

This notion of basic levels introduces a psychical realist aspect to the analysis. We have seen how the relations between past and present experience, relations that exemplify causal connection, require the persistence of the past somehow into the present, in a form and to a degree that would allow the past to effect the present. If the causal influence that we detect in experience is extended to the fundamental constituents of reality, that is if all reality were seen as experiencing some causal influence, we would then have a clear account of causality consistent with the attendant intuitions that Hume's account transforms into enigmas. The move to assume a pervasive presence of experience in something akin to a form of memory affords an explanation of our intuitions about the equally pervasive and persistent presence of causality found in all of nature. Again, by extending the experience of causal influence down to reality's fundamental constituents we do not mean to imply the full-fledged influence felt by humans, only far more *generalised forms* of perception and memory. But without something of the sort we have no guarantee of the causal order in nature and are left with either a Humean psychological approach inadequate to phenomenological fact or with a positivistic denial of causality outright.

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[40] A.N. Whitehead, "Time" in *The Interpretation of Science*, A.H. Johnson ed. Indianapolis: Bobbs-Merrill, 1961, p.242.

Nevertheless, the available causal explanation should not be taken as the effort to show necessities. From the relational structure detailed above, we should deduce that causal explanation is instead the attempt to reveal the relevant possibilities and impossibilities. The account provides necessary though not sufficient conditions for experience, unless by 'sufficient' we mean only sufficing for the possibility of the experience. No particular necessities need be entailed in this arrangement, a fact that in no way implies the lack of detected necessity as such, in the form of some such influence or another. The Berkeleyan dictum, revised by Hartshorne, 'To be is to be (destined to be) perceived', best captures the illusive essence of causal necessity as here outlined. So to put the principal insight another way, if the givenness in prehensive relations is our only instantiation of necessary causal connection, and if some such connections are necessary to hold a world together by virtue of allowing some features in it to imply other features, then any insentient entities not taking part in such relations are incapable of serving as the universal explanatory principle of that world. Hume's failed attempt to find ontological necessities is plainly the result of neglecting these one-way dependencies found in memory and perception. It has led to numerous attempts at characterising givenness in terms of some causal principle, instead of using the natural realistic conception of givenness that is readily available to characterise causality. In choosing the latter we acquire both an answer to Hume and a truly universal conception of reality.

Another advantage of the psychical realist account is that it warrants a wider range of logical possibilities for causal explanation. Modern science has dismissed the notion of final causality in trying to apply the concept of efficient causality unilaterally to explain all natural phenomena. This has led to an inexplicable divide between features of reality that easily meet the criterion and those that clearly seem to demonstrate final purposes. Whitehead, somewhat amused by the rift, makes the following observation, "Scientists animated by the purpose of proving that they are purposeless constitute an interesting subject of study."[41] The psychical realist in contrast maintains the important efficient causality concept without relinquishing the possibility of teleological explanation. The problem is how to incorporate the two concepts under one larger paradigm. From careful considerations of the relational nature of experience we come to see efficient causality as what appears in the impact of past physical influence on present experiences. We uncover the fact of efficient

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[41] A.N. Whitehead, *The Function of Reason* NJ: Princeton Univ. Press, 1929, p.15-16.

causality in the form of impersonal memory or blind prehensive intuition of the immediate past bodily influence. "Thus physical memory is causation. ...Thus Hume, when he asks for direct consciousness of causation, should be directed to memory."[42] However final causality is what occurs in the internal movement of an experience's creative activity in arranging the various elements of experience into a unity under the guidance of its own subjective purposes. Within a present experience, "the feelings are inseparable from the end at which they aim," noted Whitehead, "and this end is the feeler. The feelings aim at the feeler as their final cause."[43] From the foregoing we can deduce that crowds of individuals of low-level sentience provide ideal instances of efficient causality to ground the predictions of mechanistic science. While compound individuals of high-level sentience display originality toward the fulfilment of uniquely defined, clearly entertained goals, a kind of scaled-down final causality, and as such are intractable to explanation by an appeal to efficient causality alone.

The second issue in the psychical realist handling of causality concerns causally emergent properties. Here the psychical standpoint can be set out in brief because it follows on directly from the rejection of the Humean treatment of causality above. Given what has been said thus far, we can understand uniform correlations in natural entities, what Hume called 'constant conjunctions', as good frank evidence indicating underlying causal necessities. Water freezes when cooled, oil burns when ignited, branches bend when its windy. Detail the specific conditions completely and things could not go otherwise. Even at the level of elementary particles such necessities are easily recognised. The mass and the charge of an atom directly entail the manner of its interactions with the environment. And the physical sciences command a degree of explanatory success regarding macroscopic entities by relying on the necessary consequences, whether phrased in probabilities or otherwise, of the characteristics and interactions of constituent microscopic entities.

What Thomas Nagel has spelled out from such causally indicative phenomena are the separate consequences that hold for the weaker *constant connection* and the stronger *necessity undergirded* interpretations of causality.[44] If causal connections were merely the presence of observed yet contingent regularities and

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[42] A.N. Whitehead, "Time" in *The Interpretation of Science*, A.H. Johnson ed. Indianapolis: Bobbs-Merrill, 1961, p.242.
[43] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.197.
[44] T. Nagel, "Panpsychism" in *Mortal Questions*. Cambridge: Univ. Press, 1979, pp.186-187.

correlations, then the claim that sentience could be caused, emerging as an effect of the properties and combinations of insentient ingredients, is possible without controversy. At some point there is no sentience and at a later point there is, in any given case concerning whatever ingredients, conditions, combinations one names. Should correlations obtain, there is then a causal account in the offing and emergence is indeed possible, albeit the explanation hardly adequate in the case of sentience. But on the stronger interpretation, the fundamentally insentient material must somehow *necessitate* any derivative sentience. Just as some hidden necessity causes a tightening guitar string to snap at some threshold, so too does complex sentience necessarily entail something more than a mere framework of uniform correlations. In short, to respect the stronger causal story established above, we must consider the emergence of higher-level sentience as indicative of yet unknown proto-psychical properties in the constituents of sentient entities, properties intrinsic to the constituents that do necessitate sentience.

§ Spatial Sensibility and Timely Experience

It is easy to apply aspects of the argument for psychical realism that account for natural causality to the experience of space and time as well. First we need to sketch the problem of space and time that parallels the absence of natural causality above. Succinctly stated, we tend to view space and time as composed of points and of instants, but upon reflection realise that neither concept holds up to experiential scrutiny. Points and instants possess the puzzling ontological status of being accepted as volumeless and durationless entities, despite the fact that space and time have volume and duration as their respective conceptual trademarks. We could not possibly encounter points and instants in experience, and such purely conceptual entities should thus be defined as systematic abstractions from the relevant empirical facts lived through experientially. But without a psychical realist generalising of the lived world to extend to all natural entities, the concepts of space and time are riddled with difficulties characteristic of the causality account detailed above.

This is clearly seen with attention focused on the phenomenon of time itself. We discover that we only experience the unity of the past, the present, and the future as a result of memory and anticipation being components of present experience. Temporal succession is understood solely by virtue of *befores* contrasted to *afters*, and the only means for getting a hold of these notions is by an experiential bridge bringing the two together. A present experience owes its

temporality in part to the necessary contrast with some backdrop of pastness, and yet this very contrast effect must be intrinsic to the present experience. This goes for conceived time as well as for experienced time, given the straightforward fact that we cannot conceive of time without imagining it *as experienced.* To clarify the point, think of the difference between still photographs and motion pictures. They are much the same, for the latter merely compiles the former in a particularly organised way. But the motion as experienced is due to a linking effect reliant on memory. Otherwise the stills would be all there is in experience, the one after another, with no hint of movement ever obtained. The same of course holds for music, "In an analogous way, a note of music is nothing at an instant, but it also requires its whole period in which to manifest itself."[45]

In conceiving the temporal element of the natural world the same reasoning applies. "This phrase, 'the actual world', means the past, present, and future occasions as defined from the standpoint of some present occasion."[46] If the world were not altogether psychical, then its insentient entities would neither remember nor anticipate even to an undetectable degree. The advance of present over past would cease, succession would collapse into strict identity, with the absence of a transition toward emergent novelty marked somehow by the entities involved. But if all of nature's basic ingredients - if particles, atoms, molecules, and living cells - have something akin to memory (however minimal) of a settled past and anticipation (however short-range) of a partly open future, then two things follow. The distinctions of time into past, present, and future, would hold for all such entities, making the objective temporal order in nature as intelligible as the causal one. Time's irreversibility would also hold for all such entities, a point serving to explain the fact of evolution prior to the advent of uncontroversially experiential entities. Peirce, Bergson, James, and Whitehead all recognised the need to 'naturalise mind and mentalise nature' in order to bolster the validity of evolutionary thinking. With the metaphysical backing of a psychical realist persuasion, the question for the would-be mechanistic and materialistic thesis of how something sentient could evolve from inert insentient matter standing in entirely external relations is given a tenable answer. Recalling James' remark from the opening chapter, we can legitimise the birth of, "consciousness, however little... in any philosophy that starts without it, and yet

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[45] A.N. Whitehead, *The Principles of Natural Knowledge*, Cambridge: Univ. Press, 1925, p.54.
[46] A.N. Whitehead, "Time" in *The Interpretation of Science*, A.H. Johnson ed. Indianapolis: Bobbs-Merrill, 1961, p.242.

professes to explain all facts by continuous evolution."[47] Alongside the Darwinian emphasis on the *adapting to* an environment, comes the creativity characteristic of nature's sentience employed in the *modifying of* the environment. Individual entities, by co-operating with other individuals, are able to alter their environments the better to meet their own survival concerns.[48]

Thus the social structure of experience, the asymmetrical feeling of other past feelings, provides the basis of both the causal and temporal structure. "The leaf resting on the ground has fallen there, but this 'having-fallen', where is it, as a property of the leaf?" Hartshorne wonders, on the view positing insentient entities.[49] Since possessing past influence could by definition have no place in insentient entities, that property would have to be nowhere. In a psychical world, on the other hand, the natural world takes account of antecedent nature through the present sentience of its pervasive psychical properties.

The same temporal analysis could be extended to spatiality. Whitehead spoke against theories that posited concrete ultimacy - and with it foundational explanatory value - to 'simply located' entities seen as interpretable, "apart from any essential reference... to other regions of space and to other durations of time."[50] Today most theorists approach the issue with a degree of complexity that embraces the ramifications of the relativity physics perspective on space-time. To be sure, it would take us too far afield even to catalogue discussion that relates to the ways the concept of space has been fused with that of time in contemporary philosophy and science.[51] Let it suffice to point out that by revising three-dimensional space and one-dimensional time into four-dimensional space-time does not in itself resolve the standard issue that opened this section, namely how one gets from points in space and instants in time to full-bodied, phenomenal facts. If space-time shows anything uncontroversially, it reveals how temporality must be brought into considerations of spatial location, and that perspectival reference is required to make sense of either concept. Whitehead contends that space-time is not a fact prior to the active processes in nature, but an abstract system of perspectives, and

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47 W. James, *The Principles of Psychology*, Vol.I. London: Macmillan, 1891, pp.148-149.
48 See A.N. Whitehead, *The Function of Reason* NJ: Princeton Univ. Press, 1929, pp.1-10.
49 C.Hartshorne, *Reality as Social Process.* Glencoe, IL: Free Press, 1953, p.84.
50 A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.84.
51 For an overview, see M. Capek, "Relativity and the Status of Space," in *Review of Metaphysics* 9, 1955, pp.169-199, and "Temporal Order and Spatial Order: Their Differences and Relations," in *Mind in Nature.* Wash, DC: Univ. Press of America, 1977, pp.51-59.

that nature is made up of entities.[52] Without perspective, attempts at purely instantaneous or purely spatial divisions are fraught with difficulties. Hence the pervasive point-of-view feature the psychical account expounds throughout nature readily arises once again.

In the preceding two sections we have outlined advantages the psychical realist has to offer for explaining otherwise troublesome conceptions of space, time, and causality. The case gains momentum with these points but that force may in the end be checked by how two further questions are treated. First, are there in fact no other preferable alternatives, and secondly, does the truth of a proposition hinge solely on the attractiveness of its explanatory potential? As to the second question, clearly the answer is no. Nonetheless, explanatory potential is not to be entirely neglected as a result of logical considerations. To begin with, all logic dictates in this instance is that explanatory potential represents a necessary but not a sufficient condition for the truth of the propositions on offer. This by no means excludes the possibility of their truth. Furthermore, given the growing stock of explanatory items in our treatment, we ought to carefully weigh the fact that they may combine together into an elaborate metaphysical system to form a coherent and consistent framework applicable and adequate to the facts, namely the process metaphysics introduced in the next chapter. But as for preferable alternatives, if it is the case that none other than unacceptable denials of the evidence for causality and the reality of space and time are presently available, that fact in itself does not exclude the logical possibility of such alternatives. We discuss some aspects of alternative conceptions in the next part of the present chapter.

We have reached the end of our remarks regarding reason and psychical realism. The force of the points presented in these sections appears in the main to rely on the reasoning that helps create a sensible way of working experiential insights into the fabric of theory. Admittedly the case remains less than logically compelling outright, that is to say the conclusions drawn are not the irrevocable rational outcome of an analysis, as was the force of many of the points raised in earlier sections. But these considerations, following on from prior perceptual analysis, do offer additional means by which psychical realism may challenge the authority of intuitions and arguments that counter the doctrine.

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[52] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, pp.66-70.

PART FOUR
Conceptual Considerations

To expand on the theme of furthering the case by reasoning out a sensible theoretical stand, another important measure introduced in order to motivate the shuffling of our initial intuitions regarding psychical realism trades on the lack of tenable alternatives. Providing detailed refutations of even each of the principal alternatives is of course beyond our present scope, nor can we prove that there are no other significantly different alternatives available. But we can put forth a short statement of the essential difficulties to supplement the criticisms given in passing throughout our discussion.

§ Addressing Alternatives

Merely by way of sketching an outline then, the following are the most commonly pursued metaphysical possibilities on offer. One can opt for materialism and try to construe mind as a special case of matter, or opt for idealism and try to treat matter as a special case of mind or experience. One can try to maintain an ultimate dualism made up of both mind and matter, or try to conceive a neutral monism of primordial entities of which both mind and matter are special cases. The problem with this last move is that it is readily reducible to one of the others. Mind is by definition something that at least in some minimal form feels, intuits, enjoys, suffers - in a word, experiences. So either the so-called neutral entities feel or they do not: if so they are instances of mind, if not they are - again, by definition - surely a kind of matter.

The nature of the problems with the remaining three traditional classes of alternatives are these. Dualism addresses our common sense intuitions by saying that mind and matter are both actual, but leaves us in the dark about how they interact, or at least seem to interact. Moreover, dualism is itself reducible if one focuses on the combining of mind and matter. *That relation* has itself to be characterised one way or another, and the concept that effects the relation encompasses both terms rendering the whole in the end as either material, mental, or neutral. Summed up by Hartshorne, "Thus dualism labels the problem, not the solution."[53]

Materialism, by reducing mind to matter, forces us to deny that our own experience - the thing we know best in the world - is efficacious or even real

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[53] C. Hartshorne, "Panpsychism: Mind as Sole Reality," in *Ultimate Reality and Meaning* 1,2, 1978, pp.115-129.

at all. To avoid this pitfall an emergence scenario is often offered to attenuate the reduction whereby mind is deemed a special form of matter arising on earth and perhaps scattered about the universe. But here dualism merely enters through the backdoor because once mind has emerged it essentially feels, intuits, enjoys, suffers, and so on, rather than simply suggesting as much through behavioural cues. And this sort of emergence only adds a temporal gloss (and thus another problem) to the already problematic dualism mentioned above. In the first instance, the materialist is limited by the straightforward assumption that in the idea of mere matter and its behaviour there is only the space and time and shape and size that is occupied, and the combinations and movements of these. Now the would-be materialist faces the problem of understanding how at some point, out of the mere behaviour of matter, qualities of a distinct logical type come about, qualities left out of the bare structural account expressed in the concepts of physical science. Add to these troubles either accepting the paradoxes of epiphenomenalism or explaining how mind influences mere non-psychical stuff, and it appears again as Hartshorne notes that the materialist remedy of, "emergence, like dualism, is a label for some problems, a solution of none."[54]

To side-step these and other difficulties many materialists attempt to do away with dualism entirely by positing a strict identity between mind and matter, between psychical functions on the one hand and material processes on the other. Sensations for instance are understood as simply being certain neural goings on. And it is here, in light of this move and with some irony, that the psychical realist alternative enjoys initial illumination. This is because while idealism of the subjective variety Berkeley proposed, by reducing matter to mind, commits the reciprocal mistake of denying that our own bodies are efficacious or even real at all, psychical realism presents an altogether different rendition of the idealist thesis whereby the identity of mind and matter suggested by the materialist is taken as a clue to the nature of things, but in this case with the implication that matter in general is really mind in general.

Psychical realism then allows us to understand our common sense assumptions that our experiences are real, that our bodies are real, and that the two actually interact. Implicit in the ways we live is the assumption that our real bodies influence our real experiences and that our real experiences influence our bodies in return. Psychical realism provides a plausible account of how these

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[54] C. Hartshorne, "Panpsychism: Mind as Sole Reality," in *Ultimate Reality and Meaning* 1,2, 1978, pp.115-129.

assumptions could be true without either being dualistic or reductionistic. It does so rather by proposing what amounts to an ontological form of idealism. Take painful sensory experience. In such cases we in effect feel the feelings of our bodily constituents. The influence in some circumstances may build up until the effect on our high-level experiential participation in those low-level feelings is finally manifest. Should we stand in the rain too long for example, the suffering that the bodily cells in our feet endure may finally effect our mood and we too will then suffer. Doctors, though not all philosophers, are well aware that evidence of damage to bodily tissue correlates with poor health and discomfort. The same holds likewise in the other direction. We can often detect how dominant, high-level, human experience takes its toll on subservient, low-level, bodily feelings. When we are exhausted our physical resistances also diminish and allow in a greater chance of falling ill, when depressed our bodies are also plagued with aches and pains. To be sure, there is much yet to say on this score, but for present purposes it is enough simply to recognise the structural framework the psychicalist has on offer to embrace our commonly held beliefs about mind and body and the fact of interaction between them.

§ Agnostic Options

On its own this summary of the picture would not have much in it, but taking the summary as given, Timothy Sprigge has proposed a way of looking at the matter from a logical point of view in abstraction to establish further grounds for accepting a psychical form of reality.[55] Briefly, the proposal goes as follows. If faced with a question which one knows is meaningful and has an answer, and say if the three alternatives to one's own unchecked though far from proven answer seemed implausible if not incoherent, there are then only two possibilities: accepting one's answer as true or accepting agnosticism. As to the latter possibility, there seem to be three types of agnosticism. A simple 'don't know' of people who either lack interest in the question or doubt their personal capacity to deal with it, a considered belief that the answer is beyond the scope of our understanding, or an acceptance that we could understand the answer but could not identify it if it were in our possession. The first type is not truly an agnostic answer but an absence of one and the second is irrational if one admits the logical possibility that a certain answer that one can in fact understand may be the true one. So we must therefore choose between insisting on the third type of agnosticism or accepting our answer.

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[55] T.L.S. Sprigge, *The Vindication of Absolute Idealism.* Edinburgh: Univ. Press, 1983, pp.87-90.

If the question is the metaphysical one here under investigation, and the unrefuted though unproven answer is a psychical realist form of idealism, surely adopting that hypothesis is preferable to holding that the answer must remain hidden to us. We either take the basic units of reality to be made up of experiencing entities of some sort, presumably of many sorts for the most part widely different from those of humans, or we simply do not know what most of them are. Our reaching out to independent entities is either social and sympathetic, in Whitehead's phrasing 'a feeling of feelings', or it is a leap in the dark. The *possible* truth of such an answer and the lack of any plausible alternative are sufficient conditions for rejecting agnosticism. There is the chance, even allowing for error, that by accepting the answer we are seeing reality as it really is. And if this answer also helped to shape a general view of reality, as we have seen that it does, which grouped and solved other puzzles it would be sensible to stick with it to see just how many issues could be clarified through it. If we hold materialism, dualism, and subjective idealism to be the three alternatives referred to above, a psychical realist form of idealism is in the very least a more complete account.

§ Epistemic Realism & Ontic Idealism

In light of the above analysis of alternatives, we now turn to erecting the required rational backdrop to envisioning idealism as compatible and harmonious with realism. If these overarching views can be reasonably fused to form a coherent framework broadly embedding psychical realism,[56] that option may further outweigh the agnostic as outlined. For this we once more look to Hartshorne who has sketched and clarified a reasonable and consistent synthesis of these two formerly disparate points of view.[57]

Hartshorne holds that two theses constitute epistemic realism: that whatever a subject experiences does not depend on that subject (objective independence), and that a subject does depend to some degree on whatever it experiences (subjective dependence). The first supplies subjects with something to experience and the second claims that this experiencing conforms to the object experienced. The theses are consistent with each other and by and large stand to reason as depicting a candid if not fully developed realism. Ontic idealism[58] is next

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[56] The present emphasis is on *broadly outlining* a framework that supports psychical realism. The next chapter articulates the view as specific to process metaphysics.

[57] See C. Hartshorne, "The Synthesis of Idealism and Realism," in *Theoria* 15, 1949, pp.90-107.

[58] The phrase *ontic idealism* coined here delineates the sharpened idealist focus being set out. Hartshorne neglects to offer a terminological distinction from related doctrines.

defined according to the following two additional theses: that any entity must be object for some subject (universal objectivity), and that any concrete entity is itself a subject or set of subjects (universal subjectivity). It follows that the experience of all subjects is in actual fact the experience of other subjects *as objects*. This second pair of theses are stipulated definitionally and serve to distinguish ontic idealism from a host of other idealistic theories.

Now the term 'idealism' like many an 'ism' carries distinctly varied connotations. Subjective idealists like the Berkeleyans mentioned earlier contend that all physical objects are ideas in minds, and the only possible knowledge is the knowledge of one's own mental states. But then ontic idealists as depicted thus far tend toward epistemic realism. For some idealists all relations are internal and everything depends on everything else, while for others relations are external and everything is independent. Ontic idealists develop both types of relations with dependency *and* independency the outcome. There are religious idealists, but there are also atheists; there are the agnostic ones and then the Gnostic ones. Some are dialectical, some anti-dialectical; some rationalists, some empiricists. There are idealists with primarily artistic concerns and idealists whose focus is largely scientific. Ontic idealists can and have maintained varied glosses on these many issues. Finally, there are idealists that either believe or disbelieve that substance, that causality, or that space and time are real or even possible.[59] In these cases ontic idealists do commit themselves to particular views as opposed to others, some of which we have already detailed in part and which are to be presented and examined further as tenets of the process metaphysics in the chapter that follows.

Given such an array of positions, there is some question as to whether an ontic-idealist epistemic-realist view embraces the central affirmations of idealism. But grouping all the radically differing positions under one set of ideas is none too easy in the first place, despite the fact that idealist theories clearly represent a common and distinct departure from other theoretical standpoints. Unfortunately the oft suggested heading of 'views incorporating spiritual explanation' does not necessarily include ontic idealists, nor does it fully respect the conceptual distance that may separate the various traditional forms of idealism. Consider the contrast for instance between Bradley's impersonal and immanent Absolute and Berkeley's personal and transcendent God. Indeed

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[59] For selected writings by prominent idealists most associated with this catalogue of viewpoints see, *The Idealist Tradition*, A.C. Ewing ed. Glencoe, IL: Free Press, 1957.

despite that historically characteristic and influential forms of idealism have attempted to philosophically prove the doctrines of religion, idealist thought has developed as much outside of as within that tradition.

A preferable phrasing that keeps to one framework, but also renders the definition universal enough to embrace the ontic idealist doctrine being developed here, is to say that idealism in short is the attempt to interpret reality in terms of mind. The term 'mind' is then open to a general interpretation meaning psychical in contrast to the *merely* physical. In so doing we exclude elements of some idealist positions outright, yet represent all of them at least partially and retain the common thread - one perhaps encompassing them all - namely the notion that the idea of physical things which exist apart from all experience is incoherent. The main reason for clearly delineating these terms is first to address the resolute scepticism that remains for any and all forms of idealism as a result of a history of neglecting these very distinctions, and second, to put an end to persistent discussion over whether Whitehead and process thinkers generally ought then to be depicted as idealists. Both muddles weaken the case for the psychical real position circuitously. So with the qualifications specified thus, we return to the synthesis of epistemic realism and ontic idealism.

Hartshorne believes that realism and idealism as so defined are not in conflict, and he sets out to show this by scrutinising the ways the stated principles describing them combine.[60] Are the first two realist notions of objective independence and subjective dependence compatible with the common thread of all idealism, their universal objectivity? The realist principles simply put mean that when a *specific* subject knows something, the content of that knowledge is extrinsically related to the knowing of it, but that in so knowing, the subject is intrinsically related to the content known. The reader depends on the present writing in order to continue reading it, but the writing is independent of that particular reading of it. While written words are taken up in the minds of readers, minds are not taken down by the written words, for we adjust to them not they to us. The relation is asymmetrical and goes in one direction. It is plain that knowing and (extending the logic) that all other experiencing is dependent whereas the contents of knowledge and all other objects of experience are not.

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[60] C. Hartshorne, "The Synthesis of Idealism and Realism," in *Theoria* 15, 1949, pp.90-107.

Nonetheless universal objectivity, the core of idealism, simply means that subjects are related intrinsically to subjectivity *in general.* That is to say every experiencing subject must become an object of another experience, a subject *as object,* taken up somewhere at sometime in the subjectivity that pervades the world. This relation is easily spelled out with an analogy to universals. It may be that there are no universal forms without instantiated particulars: no love if no lovers, no philosophy if no philosophers, no comedy if no comics, and so on. But we would still have love without Don Juan, philosophy without Socrates, comedy without Groucho Marx. Just as *it may be* that these universals depend on some particular or other to come into being (but none specifically), so too with subjects who without being taken up in some further experience or other (again, none specifically), would on this view have no being. Note that this principle combines unproblematically with the two realist principles and perhaps appears less incredible when the fourth, universal subjectivity, is added to the outlook.

It is manifest that universal subjectivity is compatible with all three previous principles. It assumes realism by placing a real world *out there* to be experienced and upholds universal objectivity by positing *nothing but* subjects experiencing. Just because what a subject experiences is another subject in no way undermines the dependency relations explained above. Again, the experiencing subject depends on the experience even if that experience be of a subject as object, while that object is independent of any such experiencing. Historians of antiquity know their Pericles. That knowledge may ennoble them to some degree but obviously it has no effect on the ancient and already noble statesman.

Universal subjectivity and hence psychical realism can be wholly realistic given the suggested version of realism, in addition to supporting the idealists otherwise contentious rendition of universal objectivity.[61] The logic behind the position is all but the opposite of that traditionally considered idealistic. Where the realist argues for the independence of the known and the dependence (relativity) of the knower, the idealist typically argues for dependence of the known and the independence (absoluteness) of some knower. On Hartshorne's reckoning it is rather the relativity of the subject that should incline us to opt for idealism. Attempts to find a non-relative absolute ground for explaining the

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[61] *Contentious* in that subjective idealists of Berkeleyan bent, without the psychical realist move, finally view the existence of one's friends, one's favourite philosophers, even the God one worships, as dependent on one's own experiencing of them.

world's relatedness have proved ineffectual time and again, while the world's genuinely relative subjects easily explain (as well as instantiate) such intrinsic relatedness. And there are other advantages to a revised *ontic* idealism. In sum Hartshorne arrives at the following outlook.

> Realistic idealism bases itself, not upon an 'ego-centric predicament' - there is no theoretical escape from the self - but upon the principle (which is no predicament) - the escape from the self, theoretical as well as practical, is into that larger community of selves or subjects the ultimate reaches of which coincide with reality. The remedy for the narrowness of experience is the sense for the vast 'ocean of feelings' of which it is a part.[62]

Finally, though Hartshorne casts his treatment specifically in terms of subjects and knowledge claims, the analysis holds equally well for the implicit general sentience he aims to justify. Early on subjects are construed to be, "anything that can be said to be aware of (know or feel or intuit) anything."[63] Regarding subjects and sentience in general the conclusions drawn from the achieved ontic idealist synthesis work to further the psychical realist case. Despite that many have already been discussed or will be anticipated in subsequent discussion, it is appropriate to mention two that follow in particular from the synthesis at this point.

As presently described a subject offers an account of how an experience can come about as an actual individual unity - a many becoming a one - that is 'not the unity of an ineffable bare identity' but one possessing a host of components, qualities, relations. There is an aesthetic coherence involved as experience, any experience, because of the variety it unifies, is able to relate itself to the rich and diverse world of its surroundings. We have examined how points in space and instants in time result in an impoverished account of being, one which results in the paradox of change and which offers no explanation of this phenomenally apparent many-in-one character of experience. Points and instants at best complete the picture by presupposing the actual units that substitute for the empty geometrical constructs they represent. Yet what actual entities are there available for the substitution? The elementary particles won't do, for they plainly represent, "a class of units whose principle of unity is not in the least furnished by the physical measurements that indicate some of the relationships in which whatever the unit may be is known to stand."[64] Since microscopic investigation always reaches a threshold beyond which

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[62] C. Hartshorne, "The Synthesis of Idealism and Realism," in *Theoria* 15, 1949, p.106.
[63] C. Hartshorne, "The Synthesis of Idealism and Realism," in *Theoria* 15, 1949, p.90.
[64] C. Hartshorne, "The Synthesis of Idealism and Realism," in *Theoria* 15, 1949, p.101.

certainty comes to an end, the subjects as conceived in an ontic idealist picture are advantageous here if only for the coherence they bring to the unified wholeness aspect of experience.

To close on a related point, because subjects have purposes which contrast with what actually is achieved, they offer a contrast of actual and potential and of particular and universal. Without subjects as fundamental, there does not seem to be anything available in these insentient building materials to furnish such contrasts. A somewhat drastic measure is to maintain that in nature's basic ingredients no such contrasts do obtain. But in a nominalism so extreme, in which all of nature was made up solely of particulars, the notion of a particular itself would fail to refer for want of any polar contrast. The abstractions science deals in at the elementary levels do not determine particulars but classes of them. Hence the so-called primary qualities do not convey particularity (that is, specific particulars) but universal characteristics that an entity might take on. All that we have are patterns of events. But human experience is no mere pattern, no mere set of rules to govern how it appears under observation. There is as well an undeniable quality of feeling. We might ask if this were not true for the lower animals, for the micro-organisms, for physical reality in the entirety of its events. For we otherwise come up against another required yet inexplicable line of demarcation somewhere along the way. On one side there is a system of singular events reduced to patterns of appearance and devoid of inside qualities. While we are stranded on the other experiential side, surrounded by a mysterious world of abstractions and ideas alone, one lacking any concreteness whatsoever, and one far more idealistic than most realists would have us go.

§ Experience and Idealism

Having delineated the ontic idealist from various other idealistic standpoints and examined the relations of ontic idealism and epistemic realism, we may now close our conceptual considerations by taking a closer look at the nature of the 'ocean of feelings' the view entails. The principal argument is found in several idealist philosophers, most notably in the revisions of Berkeley's subjective idealism put forth by F.H. Bradley and William James, and more recently by Timothy Sprigge.[65] The argument derives from reflections on the nature of perceptual and conceptual experience, which led in its original Berkeleyan form

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[65] For the relevant passages and summary of the view from Bradley and James see, T.L.S. Sprigge's, *James and Bradley.* Chicago: Open Court, 1993; for Sprigge's own treatment see his, *The Vindication of Absolute Idealism.* Edinburgh: Univ. Press, 1983, pp.110-140.

to an ontology solely of human or divine minds and their ideas. Yet in a more general form it serves to establish a world of experience as common ground prior to the specific conclusions drawn either by Berkeley or by other recent idealist philosophers. These thinkers differ in terminology and emphasis, and ultimately in application of the analysis, none holding entirely to the psychical realist line propounded above. But this common form of reasoning runs counter to another perhaps more dominant strand of idealism originating in Kantian philosophy, whereby all that exists is limited to what can be grasped by human thought. Nothing on this view could be forever beyond the concept-forming attributes of our own understanding, which results in the world constrained only to the coherent conceptions of humans. Since our conceptual categories are formed and developed through linguistic practices, it is this Kantian form of idealism (if any) and not Berkeley's, that has played the more significant part in today's predominantly analytic philosophy. Be that as it may, revising the Berkeleyan argument, as sanctioned in recent revisionary treatments, is directly relevant to psychical realism and warrants our attention.

The first stage of the argument begins with the realisation that integral to anything experienced or even conceived are mind-dependent qualities. This is evident in the perspectival, aesthetic, and gestalt-structured 'being-experienced' features that bear on the nature of that experience or conception. Whether it be a physical object such as a candle, a mental process such as a calculation, or an abstract universal such as a category, we cannot avoid imparting these sort of features to the objects of experience or conception. A gestalt isolates the particular object from all else for identity purposes, that is from all other operations and experiences in the mind; an aesthetic estimate puts it under some evaluative guise or another, whether specified or left general, good or bad, neutral or evaluatively irrelevant or otherwise; a perspective is held from which the object of experience or conception is taken in. Note that these specific features are not required *necessarily*, but are employed as likely candidates to making plain the necessary mind-dependency quality objects of experience and concept possess. Whether the indicators are obviously present, the principal insight remains, as Sprigge lays it out,

> Whenever you really bring home to yourself the character you conceive a physical thing as having, you find that this includes characteristics it can only have within an experience... you cannot form a, so to speak, positive

conception of what a physical thing would be like denuded of all qualities which reflect a mind's awareness of it.[66]

Reflection then reveals that this realisation applies in turn to all components of any experienced or conceived entities. For whatever object we care to conceive of or to experience, any part of that object (should it lend itself to such division) would also display these same mind-dependent features, it too would amount to something as being-experienced. Therefore every object of experience or conception is made up entirely of components of mind-dependent, being-experienced qualities; and for an object of experience or conception not to be made up of them is inconceivable, for try as we might, the being-experienced qualities always and completely pervade whatever objects we encounter or conjure up.

The second stage of the argument opens with the idea that any instance of being-experienced implies a corresponding instance of experiencing. Here 'corresponding' is ambiguous in that it could imply an equal number of independent but paired experiencing subjects, one deity or absolute awareness, or something in between. Perhaps the simplest explanation is that experiencing and being-experienced are two aspects of one and the same activity or entity. The positing of an identity between experiencing and being-experienced is proved coherent in our own case, that is in those experiences we ourselves live through, most of which include an experiencing (subjective side) and a being-experienced (objective side) but some, such as aesthetic and mystical experience, that include a collapsing of the relation into one experiential identity. At any rate, in either case we do have a straightforward instance of experience and, to follow both Hume and the phenomenology school, there does not seem to be a further experiential substratum, either empirically sensed or logically required. Therefore we can adopt the plausible idealistic explanation that the world is completely made up of experiences, where 'experience' refers either to the experiencing/being-experienced relation or to a collapsing of that relation into an identity. Again, we understand both cases from our own exemplary experience, and upon analysis we find that any existent that is not an experience as so outlined is inconceivable. "Thus your belief," Sprigge continues, "that there may be a physical thing denuded of such qualities is merely a verbal belief in something of which you have no real conception."[67]

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[66] T.L.S. Sprigge, *Theories of Existence*. Harmondsworth: Penguin, 1984, p.64.
[67] T.L.S. Sprigge, *Theories of Existence*. Harmondsworth: Penguin, 1984, p.64.

In essence this second stage concerns the shift from an epistemological insight into the mind-dependency aspect of our own experience of the world, and toward an ontological insight into what must be the case for existences independent of our experience. The shift can be justified on two further grounds: consider first Descartes' notion that metaphysics is the pursuit of clear and distinct ideas about the nature of reality. Clearly we are not succeeding metaphysically when we posit inconceivables such as a 'not-being-experienced' reality at the centre of our theoretical constructs to do the major metaphysical explanatory work. Worse than unclear and indistinct, the notion as we have seen is utterly inconceivable. Although one perhaps could identify a degree of logical difference between inconceivable and logically impossible, the point is sufficiently forceful as it stands, for metaphysics is far from satisfactory when mysteries are posited in the place of tenable explanations. Second, note that it is good evidence that our epistemological situation rightly suggests the relevant ontological one when the better we come to understand the concepts involved, the less we are able to conceive the situation to be otherwise. If we initially had the limited understanding, for example, that squares have at least two angles and that circles have at least an arch of 180 degrees, the possibility that there might be square circles would be quite difficult to conceive. If we then came to understand the full four angle (and no arch) quality of squares and the full 360 degree arch (and no angle) quality of circles, we would then find the notion of square circles utterly inconceivable, as well as logically impossible in this case. The situation is much the same when considering the idea of the nature of reality in itself. The more we understand the experience of it, the more we see that it always involves a relation of experiencing with being-experienced, in short it always involves experience. Bear in mind nonetheless that the argument does not entail the particular psychical realist division of reality specified earlier, though it does succeed in offering a plausible basis for rendering reality experiential in essence. Directing that important initial insight into an accommodating metaphysical system will be our concern in the next chapter.

The principal distinction between the original Berkeleyan line and this revision of it concerns the differing conceptions of the experiencing side or subjective pole of experience. For Berkeley believed that it is an enduring 'spirit' that attends to its 'ideas' whereas here it is rather the momentary act of experiencing in relation to what is being experienced that is stressed, and occasionally a collapsing of subjective with objective poles into an identity is allowed and given an account. Indeed, the initially curious fact about experience

as set out here is that it does not entail (nor provide evidence for) a self or ego underlying the experiential act to constitute its being. There is the experiencing/being-experienced relation alone, that is, an experience without the further substantial backing of an experiencer. This calls to mind the analysis of substance and events from the opening chapter, the further significance of which is also to be developed in the next chapter in the examination of experiential events in process philosophy. In both its early and revised forms however, the idealist insight is to conceive of the physical world as a useful construction that combines experience with some hypothetical completion of experience.

We have come to the close of our conceptual considerations in light of the main metaphysical alternatives, the agnostic options, and the relevant idealist currents. The psychical realist picture befits the outcome of a line of idealist thought, neglected by many contemporary philosophers, regarding the logically possible options, and it benefits from the essential Berkeleyan idealistic insight. Metaphysical proposals are best judged by considering what problems they help solve better than other metaphysical possibilities, and the success the psychical realist has in connecting and solving previously unrelated problems goes some way in support of the case being made. To be sure, such matters as the undermining of countering intuitions, the fusing of previously separate metaphysical difficulties, the reasoned extension of logically possible positions, and the conclusions drawn from basic perceptual and conceptual characteristics are generally not answerable to the principles of direct empirical testing. The idea that reality is psychical, if accepted, is done so on somewhat less than certain grounds, and we do well to keep in mind exactly what that acceptance does and does not mean. It does not imply a rejection of ordinary intuitions. The picture as argued allows for the intuitively strong fact that most of our experience appears to be of entities that seem unpsychical. Plants and planets have no unified form of feeling beyond the sentience of the invisibly small parts that constitute them. Indeed, much of what we experience is in this category. It does not imply either a radical subjectivist world made exclusively of mind or a radical positivist world excluding it outright. Yet it does imply a psychical idealist perspective compatible with an epistemological realism. Memories and perceptions - our bridges to reality - have both independent and dependent aspects. 'To be (as past) is to be destined to be perceived.' Finally, it means the existence of the physical remains intact, as our notion of psychical is compatible

with, even requires, a *version* of physical reality. The psychical qualities of experience constitute an ontology consistent with scientific facts and scientific advances. The theory of psychical realism so understood is therefore a more complete account of reality, and it is hoped a more compelling one.

PART FIVE
Argument along Genetic and Analogic Lines

Commentators on the doctrine tend to separate the argumentation in its support into two kinds of treatments: the analogic and the genetic. The former concerns how we develop our understanding of the natural world by extending the analogy, however direct or dim, from our own experience to that which lies beyond it. The latter concerns how in examining the genealogy of whatever exists in present reality we come to appreciate the experiential suggestions that effect the particular causal necessities entailed. Another related and noteworthy distinction is that between psychical realist reasoning that requires specific metaphysical or epistemological backing in order to make the doctrine intelligible, and psychical reasoning that rather relies on more empirical findings and inductive grounds.

Our examination has not adhered to these dividing lines thus far, and for the following reasons. First, the analogic-genetic division is finally a superficial one that can inhibit the force of points made plain and better expressed when clustered. To fully recognise the significance of certain genetic factors we have to employ a degree of analogy, and to fully extend analogous experience we must bear in mind a degree of genetic detail. Second, the case for psychical realism is more convincing if first presented independently (to whatever degree possible) of metaphysical and epistemological commitments specific to a particular system. A few commitments are finally unavoidable and have so been introduced, clarified, argued along the way, many only to come to fruition in subsequent discussion in the next chapter. Moreover, empirical and inductive support is more intelligible and most effective when interpreted in conjunction with some framework adequate to the task, whether it is at the time made categorically clear. Integral to a good deal of what has already been established is an implicit reliance on analogic reasoning. Hence in this, the final part of our investigation of psychical realism, our focus will be primarily on the genetic argument, but with whatever analogic emphasis that may bear on the issue here made explicit.

§ Apes, Atoms, Abstraction, Analogy

We begin however with some preliminary remarks pertaining in the abstract to all levels of the extension of experience as lived through by analogy, whether it be done the better to sympathise with our near neighbours the apes, or to advance technical comprehension of all but unimaginable atomic activity. It is commonly accepted by all (that is by all but a few philosophers) that human knowledge is not the measure of reality. It is accepted that enquiry comes to an end far short of the vast reaches of the natural world. Yet, from our analysis of experience we know that every concept, even a general one like the concept of reality, must somehow be related to experience. Our most general ideas are still ideas and at bottom, directly or indirectly, it is experience that gives them their sense. So one initial point is that the proposal to extend our sense of experience all the way out as it were, extended far enough to embrace concepts as general as reality itself, is in the main something we are quite accustomed to doing, and concepts like reality take on meaning by virtue of such extension *in one form or another.* In utilising an argument from analogy our aim is to ponder where in reality we can recognise forms of feeling and perceiving, remembering and anticipating, attracting and averting, however primitive and simple, however odd or strange they may seem in contrast to our own human sentience. It is simply a special case of the sort of extension we rely on in all sorts of more familiar situations.

A second point worth emphasising at the outset is one mentioned earlier, but the ramifications of which are so often overlooked that we do well to detail it once again. Namely that however inept we may be at extending the analogy from our own experience to whatever lies beyond it, we do not and could not know of a part of nature *absolutely* lacking in rudimentary aspects of experience, in a basic level of activity, individuality, initiative, and purpose. It is simply impossible for any conceivable observer utilising any conceivable means of observation to detect the sheer absence of such feeling. We are just unable to know what it would be like to experience the complete absence somewhere of feeling, which may in fact be so utterly simple in comparison to our own. We know what it is like to be human beings living through experiences because we are such animate creatures doing just that, but we could never know what it is like to be inanimate by being one of whatever that may be. Once the notion of sentience is fully generalised, Hartshorne is quick to point out the relevant logic.

> We are here discussing meanings, not contingent facts, rather necessary or impossible combinations of basic ideas. From conceptual necessities we

know that nothing positive could conflict with the presence of mind in some form, that total insentience is strictly unknowable, and that sheerly unknowable is a pseudo-concept.[68]

Thus generalised, experience is all that is required to answer to reality as encountered in everyday living and in the probings of science; the idea of generalised sentience completely covers the idea of actuality. Nothing need be other than sentience when there are innumerable ways and degrees of complexity, intensity, creativity, spatio-temporality, in which experience may vary. Sentience is as various and protean as the reality it experiences. Hartshorne, recalling Peirce's useful division of empirical science into the efficient causal world of physics and the final causal world of 'psychics', made the insightful remark that,

> Just as physics generalises variables of movement so that they can apply not only to a human hunter and his fleeing prey, but also to stars, planets, atoms, and photons, so psychics needs to generalise such ideas as feeling, perceiving, remembering, anticipating, intending, liking and disliking, so that they can apply not only to animals, but even to the real individual constituents of the vegetable and mineral portions of nature.[69]

The counterpoint in this instance is likewise illuminating for the argument from analogy. For in the physical sciences as commonly conceived, in striving to achieve universal explanatory principles, the analogous extension of sentience is typically stipulated as an illegitimate means to furthering understanding. This is because the subjective realm, as revealed in the preceding chapter, fails to provide the sort of publicly verifiable data upon which science generally depends. Hence there is a notable bias against any phenomena such as sentience which remain mysterious for not yielding to physical explanation. But from a psychical perspective the bias in such reasoning is exposed merely by turning it around: if mentality proves mysterious for being physically unexplained, then matter is just as mysterious for being mentally unexplained. And the two sides are surely less than symmetrically divided, for the psychical account of the structural undergirding of experience is consistent with the data and the ongoing developments in the physical sciences, whereas adherents to physical reduction (along with *half-reducing* dualists) appear to believe that from the sentient side of reality we can only learn about sentient beings, but not about the basic gas, solid, liquid entities of the physical sciences. This is evident in the strict separation of physical science from the humanities, and in the reluctance to

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[68] C. Hartshorne, "Minds and Bodies," in *Points of View.* Forthcoming by Open Court, 1996.
[69] C. Hartshorne, "Physics and Psychics: The Place of Mind in Nature," in *Mind in Nature.* Wash.DC: Univ. Press of America, 1977 p.90.

engage in what otherwise might be profitable dialogue. Note that if it is conceivable that thinkers of this bent are wrong, they are being less than scientific in their barring of the path of inquiry. The scientific community may opt for an official line limiting their domain of endeavour to the behaviours of all known physical activity. Nevertheless even the scientists unofficially acknowledge, in themselves at least, such qualities as pleasure and pain, sweetness and sourness, happiness and sorrow, love and hate. Any stipulated refusal to extend anything generally - not specifically - like these traits to gain insight in the very least into other entities in the biological sphere is merely stubborn and anthropomorphically restricted.[70]

Obviously, the use of analogy in furthering the case for the doctrine of psychical realism makes unusual demands on the imagination, which in part could explain any scientific reluctance to entertain the notion. We are asked to proceed from bodily feelings all the way down to atomic ones and then some. But bear in mind that nowadays physicists claim that the structural aspects of atoms are utterly unimaginable anyhow, though mathematically expressible. At what point does this ground of objection begin to lose its validity? True, the range of what can be imagined varies across individuals, but there does not seem to be any reason in principle that denies the extension of sentience at a point somewhere short of the actual world. Given the state of scientific advancement, the charge against the psychical realist of committing a poetic fallacy appears all too quick. Again, to address a widely mistaken critique in terms of scientific procedure: extending the psychical analogy does not turn all stones into people any more than determining their mass turns all people into stone. Hartshorne proposes we counter the charge of poetic or pathetic fallacy by calling attention to the contrary prosaic or apathetic one: that is, the mistake of supposing the world to be as tame as our sluggish convention-ridden imaginations imply. To contend that apart from us and beings like us there is nothing with intrinsic feeling and value of any sort whatever, that our kind of being alone introduced sentience into the natural world, "Is this not in a class with the idea that our planet is at the centre of the universe?"[71] Yet Hartshorne displays characteristic empathy for the opposition.

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[70] Interestingly, physicists do sometimes speak - albeit in intended metaphor - of the 'excited' or 'satisfied' states of atoms.

[71] C. Hartshorne, "Physics and Psychics: The Place of Mind in Nature," in *Mind in Nature.* Wash.DC: Univ. Press of America, 1977, p.94.

> Nothing is easier than to understand the scepticism which many feel toward any such view. What I call the 'prosaic' or 'apathetic' fallacy is almost as naturally human as the poetic or pathetic fallacy. The world is neither the fairyland of primitive cultures nor the great machine of early modern science. Nor is it merely a vast but mindless organism. It is rather a vast many-levelled 'society of societies'. Enormous imagination and courage, combined with careful weighing of rather complicated chains of evidence, are required if we are to arrive at much idea of this cosmic society. There is no easy path, whether sentimental or cynical.[72]

These introductory remarks regarding the general nature of the psychical analogy suffice to show that the real work is yet to come. We precede directly to the task of application of the analogy, weighing what evidence there is, with the requisite 'imagination and courage' should it be forthcoming.

§ The Standard Genetic Line

There is a genetic argument that lends support to psychical realism when the analogic concerns are likewise implemented, but in order to put forth a convincing account of it we must first examine the traditional form the argument has taken. Here we find the reasoning insufficient and the standard objections quite defensible. The typical form of the argument is based on a principle of continuity which states that there could not have been a point in the history of the world when there was no experience if at a later point there was. To explain the emergence of mind-related qualities in the world one contends that in fact experience at least in some basic form had been present all along. The particular application of the principle commonly concerns biological continuity whereby the various species of living things are held to differ solely in degree but not in kind, for continuity dictates that the evolution of higher life out of lower must work similarly in the evolution of life itself from inanimate matter. Hence the higher forms of experience in humans and in animals is the outcome of complex patterns evolving out of lower forms of experience pervasive in reality, with the ultimate building materials of all of reality conceived as being experiential in this manner.

There are two weighty objections to the argument in this form. First, as Paul Edwards has made abundantly clear,[73] the force of the argument comes from the dubious scholastic principle that a cause must possess its effect *in actuality* in order to pass it on as an effect of that cause. As the effect of cooling for instance

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[72] C. Hartshorne, "Physics and Psychics: The Place of Mind in Nature," in *Mind in Nature.* Wash.DC: Univ. Press of America, 1977, p.94.

[73] P. Edwards, "Panpsychism," in *The Encyclopaedia of Philosophy.* P. Edwards, ed. NY: Free Press, 1967, Vol.6, pp.28-31.

is thought to require a cool cause, so too does the presence of mind require mentality in its cause. But the whole of evolutionary thought - biological, cultural, cosmological, what have you - is witness to exceptions of this outmoded notion. And there are countless counter-examples even in the realm of physical science where one might consider it to have at least limited validity. The effect of causing a shaft of light to pass through a clear prism is a spectrum of colour. Chemicals routinely combine to create effects nowhere present in either of them separately or in the procedures employed to cause their combination. What is more, even in terms of the issue at hand the idea that causes possess their effects in actuality seems wrong-headed. Any number of physical ailments - burns, fractures, tumours - are known to cause corresponding mental effects.

Second, should we accept the scholastic principle, and so posit the presence of sentience all the way down, it seems we still face a choice between two undesirable outcomes. Either the problem merely shifts from the original issue of experience as an effect arising from a cause without experience to the equally problematic effect of high-level experience such as consciousness arising from rudimentary sentience, or we allow the emergence of high levels from low and then face the issue of why mentality itself cannot emerge from the non-mental. Either way the problem remains unresolved.

Thomas Nagel, incidentally, has proposed a recent rendition of the argument in something like this standard form.[74] He outlines the reasoning in terms of four plausible claims which when taken together unearth the plausibility of a broadly panpsychist outlook. Nagel begins by stating that all living organisms are made of matter because any material could be incorporated into an organism's physical constitution if it were sufficiently broken down and rearranged. Second, that psychical properties are not physical properties and are not reducible to them because being of a separate logical type physical properties are inapplicable to them. Third, that they are in fact properties of living organisms all the same because they are properties of something and there are no vitalist type souls as their owners. And finally, that there are no genuine emergent properties because emergence where posited is merely a measure of present limits to knowledge.

Nagel takes the first horn of the dilemma above and claims, perhaps uncontroversially (but then perhaps unsatisfactorily too), that to side-step the

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[74] T. Nagel, "Panpsychism," in *Mortal Questions.* Cambridge: Univ. Press, 1979, pp.181-195.

issue of how high-level experience arises from low-level sentience one needs only to consider the richness and complexity of the way rudimentary sentient entities may combine. The idea is that present limitations in epistemic range fully explain any illusion we might harbour of there being insufficient causal power. Our current notions regarding seemingly emergent psychical properties simply indicate that there are properties in the constituent entities of which we are not aware. Owing to this analysis, Nagel suggests we must look to these constituent parts to discover the intrinsic psychical properties from which psychical experience as we know it would follow. Note that the force of the argument rests finally on the discovery of any such evidence. We can accept each of the four premises and also accept that the conclusion would follow, but still find the argument less than convincing for the sheer absence of intrinsic psychical properties presently on hand and the heavy reliance on forthcoming evidence supposedly suggesting them. But it could be that the lack of any evidence is in large part the result of insufficient conceptual understanding. Perhaps the lowest conceivable biological sentience is not the lowest conceivable sentience, and that it is possible to conceive something like sentience, derivative from our experience, even on the lowest physical level known to science. Targeting the issue of present psychical evidence and its relation to our conceptual limits is precisely what the versions of analogic and genetic arguments that we shall presently consider aim to do.

So we can acknowledge the force of the objections against the genetic argument in its traditional form and yet, by distancing our rendition of it from that form and in a direction supplementing Nagel's, at once retrieve the force of the argument while offering an acceptable metaphysical framework for its more plausible elements. And the way to begin is by looking carefully at the empirical sciences themselves and asking whether psychical realism as *hypothesis* is readily conceivable and consistent with the facts of science. For the sciences today in many of their manifestations are no longer committed to viewing the elementary units of nature in ways that imply an absolute absence of sentient activity. In fact upon close scrutiny they often seem to suggest more than just the possibility of sentience there. With present day empirical data and the license that data now grants to metaphysical speculation, contemporary science likewise has no commitment to conceiving the basic units of nature as devoid of intrinsic value or internal relations or final causation either. That license is mainly derived from the phenomenalist aspect of contemporary physics, for at the quantum level

reality models are no longer provided but merely shadows or symbols for reality, which any number of metaphysical interpretations may attempt to explain by providing coherent and adequate pictures of a world to coincide with the facts those symbols express. In addition, scientists no longer insist that the laws that govern these units are eternal, that time is unreal for them, or that all natural phenomena are just the result of their external interactions wholly governed by the four (known) natural forces. Science in short, by undergoing a paradigm shift away from reductionist mechanism and toward organistic holism, has come to the aid of psychical realist metaphysics by offering new evidence for genetic continuity amongst the entities known to be in existence. How is this so?

§ The Great Chain of Becoming

At the outset we must emphasise a point made time and again, that sentience on the level of the basic units of nature need not entail a crude anthropomorphism. Human beings are endowed with a kind of complex sentience that includes self-consciousness, abstract thought, perception, and modally differentiated sensations, which in turn require a capacity for language, a brain and central nervous system, and sense organs. It would be wildly implausible to suggest that something of the sort obtains even at the level of the lowest known forms of life, let alone at the subatomic level; and as we have seen, the case for psychical realism requires no such thing. The analogies to our own psychical experience must be kept in sharp focus, both in terms of their similitudes and in terms of their differences. Yet in order to focus and then fill out our earlier general analogic argumentation with genetic evidence, we do well to proceed step by step, first down through the scale of living organisms, and then to individual existences below that scale, always cautious in extending our basic analogy and careful to keep scientific fact in the foreground.

The sentient entities that make up complex human experience are not easy to divide either empirically or metaphysically into their constituent parts. While the next chapter involves an in-depth examination of the metaphysical breakdown from a process perspective, our present considerations of analogic and genetic argument will focus on the empirical evidence. Recall from previous discussion how unity and purpose provided the key to recognising the most general ingredients of all experience. It is of course quite easy to note these features in the higher animals. (Likewise we identify the raw materials for complex sentience - language, a brain and nervous system, sense organs - in many of them, opening up the possibility that the nature of say ape or porpoise

experience is not so unlike our own.) As we go down the scale of animal life we do find elements of behaviour that imply both unity and purpose, though extending the notion of *complex sentience* resulting in *conscious purpose,* instructed by past experience and aiming toward more or less remote future results, becomes increasingly more difficult. We might identify birdsong for instance as a primitive and naive intention of short duration having to do with mating or danger. The bird is in fact displaying a genuine if short-run purpose despite singing instinctively and so lacking the awareness of any grammatical backdrop or conceptual understanding of its own message. Presumably fish have some degree of unified purposeful activity, directed for the most part by an awareness that spans shorter stretches of memory and anticipation. There is something it is like to be a bird, a fish, and surely a bat - but beyond a certain point behavioural cues diminish to little more than guess work. Just 'how little' is what is at issue here.

We also know from previous discussion that to shift further down the animal scale simply requires further generalisations from our own experience because influence from the past and concern for the future, fully generalised, offer an enormous, indeed infinite range of application, a point rarely taken for its full significance. Tune the detection of purpose to a tiny fraction of a second ahead and even an amoebae has something like a generalised minimal desire. (Indeed amoebae, often cited in such contexts, are a far from simple case. They are generally independent, solitary, and move about in an apparently aimless way. Yet, by way of offsetting the standard attribution of an absolute absence of aim, consider that forty thousand identical and originally isolated amoeboid cells can as it were unite when pressed for survival in a colony of slime mould, succeed at getting together and deciding on a course of action, undergo differentiation and a well-orchestrated division of labour, dedicate their joint efforts in an extraordinarily altruistic way to the promotion of survival in a chosen few of their number, who in effect become the occupants of a vessel fashioned out of their dead fellows for travel to a more suitable habitat.) So, let us now consider the lower animal forms. They have of course fewer kinds of sense receptors and far more primitive central nervous systems. Most insects have to make do with information from two or three sense doors and something akin to basic series circuitry wiring in their nervous systems. Hence less complexity is expected regarding their sensory and mental experiences. Still we can conceive a tenable, if imperfect, generalisation with little difficulty: sensorily

by closing our eyes and covering our ears, mentally perhaps by undergoing hypnosis, taking mind-alterating drugs. We can then shift further to forms of life where organs relating to particular sense and nerve activity are utterly absent. But never have varying sense modalities and nervous systems been necessary conditions for experience fully generalised. Bacteria have what amounts to a crude form of memory and they make decisions based on it, paramecia swim without motor nerves, protozoa digest without stomachs. The living cells in plants are accepted by botanists as organised individuals, reacting to stimuli and ordering internal activities accordingly.[75] The physiological equipment humans rely upon is specific to human experience alone. The idea therefore that such low-grade individuals have some rudimentary form of experience is not nearly that far-fetched.

There is evolutionary evidence incidentally, indicating that only in a very recent chapter of natural history do we find psychical phenomena such as sensory experience, mental representations, and other higher mental processes arising in the course of human and animal development. In the first two billion years of the earth's existence there were no such things. This warrants a slight digression. The fact of a hierarchy of complexity spanning the animal kingdom and coinciding with the course of evolution suggests that these phenomena must have evolved through various stages. If one were to hold that varied sense modalities and nervous systems and the like were necessary conditions for the presence of sentience, the fact of evolution would widen the rift between those who locate experiential variables in nature's basic ingredients and those who posit a point of emergence. The reason is that the emergence theorist would not only be committed to an inexplicable leap from insentient entities to sentient ones in every instance of experiential reality occurring nowadays, but evolving sensory organs and nervous systems would also commit the emergentist to the dubious view that in the relatively not so distant past there was no sentience in the world whatsoever.

Since we are now approaching the point down the scale at which life forms are so diminutive as to typically require the sheltering environment of another host organism, namely ourselves in many cases, we might digress further to mention another and related issue that comes between emergentists and

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[75] Whitehead described a plant as a democracy, for its parts (living cells) demonstrate more unified purpose than do those parts arranged to form a plant, despite the obvious fact that there does appear to be some degree, however variable and less unified, of purpose present both in some plants and, alas, in the odd democracy.

psychical realists. We noted above how in human beings any number of physical conditions have corresponding mental effects. Brain research continues to amass findings that relate physiological processes to psychical phenomena. Electric shocks and stimulations, psycho-active drugs, and brain wave activity alterations are all known to cause corresponding changes in states of consciousness. The fact that a clear and immediate correspondence to specific mental images has yet to be achieved may be due to the sheer complexity of the integrated physiological processes that go on in countless brain neurones. At any rate, our psychical experience does depend on chemical and physical processes in these neurones. When neurophysiological processes are altered, psychical phenomena are also altered.

Given that correspondence, the psychical realist (like the materialist) acknowledges the enticing assumption of an identity between them, for on the face of it an identity appears the most simple of explanations. To explain the correspondence on the basis of two separate and fundamentally different sorts of entities, mind and body, would entail postulating innumerable special laws which determine the specific connections between the many different qualities of sensations and mental images and the corresponding physiological processes. A psychical realist picture on the other hand has it that all the characteristics on the physiological side of the divide - the so-called matter constituting cells, molecules, atoms, elementary particles and energy processes - are psychical characteristics, that is not psychical characteristics in addition to the physical characteristics, but rather the very same characteristics. Such entities are from the inside essentially psychical, while from the outside they continue to conform completely to the abstract physical descriptions of science. The 'simple explanation' that avoids a dualist model is adhered to but not in the direction many would assume. In a sense what we have is the reciprocal of central state materialism. What this means is that when already psychical sub-atomic particles and energy processes unite to form an atom, new atomic psychical characteristics arise in this new system, and when atoms become united in molecules new chemical psychical characteristics arise. As the integration of these psychical characteristics reaches higher levels, as in living neurone cells of the brain and central nervous system, the development could lead to human-level psychical phenomena such as sensations and mental images.

How does this picture square with the biological sciences? A fertilised human egg and the subsequent cellular stages are known (from the outside) not to show

any signs of psychical processes. It is only after the development of sense receptors and a brain not long before birth that reactions in the foetus (from the inside) begin to suggest the experience of sensations. An emergence scenario has it that somewhere along this line an insertion occurs. Already betraying something of a makeshift quality, this assumed insertion is also suspect because there are specific psychical traits inherited by offspring, as anyone spending time with twins is well aware. These characteristics must be transmitted through the DNA molecules in the sperm and egg cells. Since such molecules, the general structure of which are well known, are capable of transferring psychical characteristics and guiding developmental processes that later lead to neurones and brains in which physiological processes correspond to psychical phenomena, it seems reasonable to assume that in general the molecules and their atoms already possess something of a psychical nature, *a something from the inside.* And again, that in complex neurone cells such psychical characteristics are then integrated into the psychical phenomena of conscious experience. A reasonable assumption, yes, but one to be made more compelling with backing by a tenable conception of generalised sentience.

Coming back to that task, we already noted that in considering the lowest forms of life on the evolutionary scale, we discover forms which do not have specialised sense organs or nervous systems. There are any number of organisms, so simple they are identified ambiguously as either zoological or botanical entities, that consist of microscopic bits of undivided protoplasm. These lowest-level organisms, devoid of sense organs or nervous systems, cannot of course have distinct sensory experience originating in differing sensory modes. They do nevertheless have discriminative behavioural responses known as tropisms.[76] A tropism works like a reflex but differs in that it is a reaction that embraces the entire organism rather than a localised response involving a single organ. Taking this reflexive activity found permeating the entire organism into account, it appears that the simplest life forms do respond differently as a whole to different stimuli, and so are capable of qualitatively differentiated sensation. The qualities may however reduce with the descent from the simpler multicellular to the unicellular forms to a fundamental dichotomy of attraction and aversion.

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[76] Extending tropisms beyond living forms in support of panpsychism was first suggested by C. Butler on the *Process Philosophy Forum,* Process-Philosophy@mailbase.ac.uk. The present argument is derived from his, "Panpsychism: A Restatement of the Genetic Argument" in *Idealistic Studies,* Vol.8(1), 1978, pp.33-39.

Now since sensations mediate stimulus and response in the case of at least some reflexes, we know that they are sometimes causally efficacious. An example developed by Whitehead concerns bright light and blinking.[77] On the one hand there is the retina stimulated by the flash, on the other the blinking of the eye. Between the two the qualitatively bright sensation serves as mediator, caused by the former and causing the latter. Moreover, qualitatively differentiated sensation is never *known not to mediate* stimulus and response. Reflexes which occur without any conscious sensation such as in the workings of internal organs are not known to be unaccompanied by sensation; it may be that one is unconscious of sensation in the responding organ. This point recalls our analysis of radical perception above. It may seem we are half-begging a good many questions by introducing 'unconscious sensation', but understand that our main argument concerns the descent down the scale toward the simplest sentient individuals; in the fully developed account the assumed sensations in organs are explained in terms of the constituent individuals involved. (The example serves its limited purpose, given a generalised notion of sensation as implied say in a physician's diagnosis, and other examples abound that make good the assumption.) Hence there is some inductive grounds for supposing that qualitatively differentiated sensation always mediates a stimulus and discriminative response, both in the case of reflexes and tropisms. For we have no empirical evidence that in a tropism stimulus and response are not mediated by sensation, and the simpler view is that these phenomena act after the fashion of the ones for which we do have some evidence.

To consider such sensation in more detail, enroute to establishing better grounds for generalisation, we need to distinguish sensations specific to particular sensory modes from sensory qualities common to all sensory modes. Many of our differentiated sense qualities become painful upon reaching a certain extreme of intensity. Since sensations originating in any sensory mode can be painful (lights may blind, temperatures burn, sounds pierce, and so on), and since painful sensations become hardly distinguishable as intensity increases (extreme temperatures do not feel hot or cold finally, but just more painful), it is possible to conceive a sensation of pain indistinguishable in sense modality terms. Those unfortunate souls who have endured something of the sort, perhaps as accident victims, carry a keen experiential sense of as much and require no philosophical prodding here. The sensation mediating stimulus and response in

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[77] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, pp.174-175.

the simplest forms of life may be akin to this sort of modally undifferentiated pain sensation. Of course the intensity levels would be dramatically diminished from those we must entertain regarding our senses in the way of grasping the idea. In effect for a unicellular organism it would amount to no more than a basic sense of aversion, and the mediation amount to the mere causing of the response that removes the pain provoking stimulus. Note that the dichotomy between attraction and aversion is maintained but in a simplified form. We can interpret the lack of tropistic convulsion as a sense of pleasure or at least of satisfaction, marked by the repetition of whatever activity that does not result in an undifferentiated pain sensation. With this simplification *attraction* reduces to settling for a lack of disturbance.

Prior to applying the notion of tropistic sensation to conceive a way to extend a generalised sense of experience beyond that of even unicellular life forms we need attend to a few preliminaries. For here we enter an area of investigation marked by continually shifting tides of controversy. For since Aristotle the division of reality into that which possesses souls and thereby lives and that which does not has been as much a piece of common sense as it is a philosophical doctrine. But science has come a long way since the time of the Greeks and today the line between the living and the non-living is no longer easy to draw. On the one hand cell biologists continue to make new discoveries regarding the constituents and structures of living things, and in their ability to synthesise such forms, causing the definition of life to require an increasingly wider range of interpretation. On the other hand the discoveries particle physicists continue to make regarding the properties of matter (mass, force, charge, valence, quantum states, strangeness, charm, and so on) widen the range of interpretation that defines the non-living world. Many believe these advances suggest that the difference between lifeless matter and primitive life forms is merely one of degree, and that ascertaining a particular point below which there could be no sentience is impossible. Meanwhile, others claim these same advances point exactly in the opposite direction, and still others hold fast to the ancient division claiming that each side's advances cancel out those of the other side.

From the point of view of the present investigation, it is enough that all the parties in the debate agree that the lines are not fixed but rather shifting with the tides of discovery. This alone implies that what we know of the psychical and the physical need not indicate mutually exclusive existences. One side of the widening interpretation reveals that rudimentary psychical features, distantly

related to those we know via experience, do not entail the altering of physical facts. The other side shows that rudimentary physical features, given current understanding of the equivalence of mass and energy, have lost their substantial essence. And these interpretations need not run contrary to commonly held suppositions. Specifically, we can challenge the argument that physical and psychical phenomena differ fundamentally in that the multifariousness of the former comes about largely through quantitative differences, while the latter is multifarious due to the vast array of psychical qualities involved. True enough, subatomic particles and energy processes unite to form more than a hundred kinds of atoms which in turn unite to form innumerable kinds of molecules that unite into differing minerals and into organic structures that compose the living cells and tissues of plants and animals; while it is also true that psychical phenomena are characterised by countless qualities which are experienced as something primarily given and irreducible. But this difference is abated by the fact that the quantitatively differing stages of integration of the physical can be disintegrated as well as synthesised, whereas psychical phenomena (such as ours) are only experienced at high levels of integration for which corresponding disintegrations and syntheses are not experientially accessible. The fact of a shifting division between the two realms, whatever the ultimate implications, already allows *the viewing of* the genes of biochemistry as atoms and molecules of extreme complexity, and ought likewise to warrant *the viewing of* atoms and molecules as organisms of extreme simplicity.

We are now ready to apply the notion of tropistic sensation to conceive a way to extend a generalised sense of experience to the pre-biological level. What then would a sentience more basic than the tropistic be like, on a level below even that of unicellular life forms? Not only would it be incapable of sensation distinguished according to sense modality, but it would also be incapable of sensation distinguished according to quality. That is to say, the notion of attraction and aversion corresponding to external environmental differences would itself collapse. Every entity exists in an environment with particular structural and qualitative characteristics, and yet at molecular, atomic, and subatomic levels presumably those characteristics would have to go unnoticed so to speak. There would simply be no such distinctions.

Two counters to the idea arise at once. First, is such sentience conceivable? In our experience we indeed encounter sensory input that is principally if not entirely confused at times, though typically coming through one sense mode at

a time. Think of the million particles making up the blinding fog, the countless sounds contributing to the roar of deafening waves, the fleeting activity carrying the charge of an electric shock. Despite being slightly less than completely confused and always open to cross-sensory and cognitive illumination, these experiences at least indicate the direction non-qualitatively distinguishable sentience might take. It would be sufficient for present conceptual purposes at any rate. Second, is such sentience distinguishable from no particular quality or determination whatsoever? As we have seen, contrast effects are the foundation of differentiated sensation. But just as eliminating separations between sense modes did not imply an outright lack of sensation, so too eliminating separations between what is and is not the feel of a particular quality does not imply an utter absence of a quality. Hence such sentience would entail sensation having a quality that is not externally and comparatively determined as being other than something else, but that is a quality all the same.

It follows that we cannot apply the idea of an utterly confused and completely undifferentiated sensation of pain, as we did with unicellular organisms. Trying to conceive the sentience in this way implies a level slightly higher than the lowest conceivable. But the disturbance of pain emerges at the biological level and serves to guide the survival of an organism. Even should we allow the possibility of a pain sensation completely devoid of biological purpose, it would still be qualitatively differentiated from a prior state of pleasure or of satisfaction, and consequently would not be sentience in its lowest conceivable form. It is conceivable, on the other hand, that this most basic form of sentience consists in a modally and qualitatively undifferentiated sensation of mere satisfaction. In this case it would have to be of a low intensity (hence 'satisfaction') for just as pain is correlated with sensation of high intensity, when satisfaction tends toward intense pleasure it too may become painful.

Take neutrons and photons as examples. We might conceive the sentience of a free neutron to be painful by virtue of its being supported by an atomic environment and eventually disintegrating outside of it. When the atomic environmental conditions of the neutron's support are no longer there the neutron would appear to harbour a sensation of pain. If those support conditions were not restored the neutron would disintegrate. Pain in this case appears as the experience of a supported entity deficient in support. Of course at this pre-biological level entities in pain are incapable of responses which would

restore their supportive environments. The satisfaction here is not experienced as avoiding pain, nor as a means to restoring satisfaction if the pain is experienced as satisfaction interrupted. Even so the endurance of such an individual particle is a rudimentary social process in which each event is seen to arise in accordance with its relations to prior events. Conversely, we may conceive a qualitatively undifferentiated sensation of satisfaction exemplified in an isolated photon. The case of a photon differs in that it is said to be stable even in an isolated or free state. Hence it is not a supported entity and so on this analysis it would be incapable of pain.

Admittedly, we press our conceivability concerns toward the limit here. We reach a point where it may no longer be easy to think analogously of atomic sentience, even in this entirely generalised sense. Bear in mind however that it is no easier to think of the insentient content or quality of atomic reality. The question of how other sentient entities go about experiencing is more than enough of a mystery to contend with; no reason justifies the addition of a second ontological mystery of supposedly insentient entities - a realm of vacuous actuality. Recall that the psychical realist does allow for insentient entities of one sort, namely crowds of individuals such as the rocks and trees in nature and the spectators in sports arenas, but the assertion that these crowds as a whole are insentient also in their constituent parts offers no further explanatory value.

What the above considerations amount to is *the conceivability of* pre-biological sentience as far down the scale as the subatomic level. We have at least detailed the possibility that the lowest conceivable levels of sentience could exist on the lowest physical levels known to science. In establishing this much we provide a conceptual base from which science can then proceed to the painstaking project of discovering ways primitive biological sentience may have emerged out of the pre-biological realm through a process of complexification. The argument for psychical realism depends not so much on the particular interpretation of subatomic sentience on offer here as on the assumption of complexity of even the simplest conceivable biological sentience, and on the additional assumption that complex, internally differentiated, organic wholes initially emerge or evolve out of entities of a less complex nature, so that experiential entities capable of feeling pain for instance evolve from simpler pre-biological entities lacking this capacity, but not from entities absolutely lacking sentience.

§ The Critique of Pure Feeling

Empirical sciences, we hasten to add, cannot prove the truth of a metaphysical position. Nevertheless they can discredit false ones, especially insofar as they are based on earlier and less precise scientific investigation, and provide positive support for a would-be true metaphysical position, perhaps as scientific points raised above have done. For if it is the case that the world is comprised of psychical entities, then we ought to expect science to tend more and more to reveal this fact. But are the patterns of scientific development really providing just this sort of evidence? To answer this question we next turn to examine the scientific framework that delimits the conceptual backdrop relating to analogic and genetic argumentation. We thereby expose the standard relevant mistakes, exemplified here in an argument put forth by Karl Popper, purported to stand as a general refutation of any form of psychicalism that assigns a foundational role to the nature of elementary entities. This argument is particularly noteworthy as it challenges any number of psychicalist strategies, and the conceptual basis behind it, though unable to stand up to the scrutiny, has been a pervasive hindrance to entertaining a psychical realist point of view.[78]

In addressing the argument Popper propounds in *The Self and Its Brain,* we must first see that implicit in the analysis as presented thus far is a generalised sense of the notion of memory. It is valid to consider memory a kind of primal sentience out of which all others derive.[79] From the point of view of human experience, our ability to remember allows us to follow the rules that make all other experiential operations possible. Without it logic, science, poetry would be lost to the species, the ordering and apprehending of all thought and sensation would be lost to each individual. We would be utterly cut off from any knowledge of prior experience and the patterns constructed from it. If even subatomic entities are conceived as sentient and thereby responsive to environmental variables, they too must take account of or *remember* something of that environment. For Popper recognises memory-like states as just this minimal criteria. Thus the first part of his argument begins with the supposition that a state or process is sentient - specified as an instance of consciousness or awareness - only if it is, or if it is accompanied by memory. With this the psychical realist is agreed, but Popper's wording here betrays incipient pitfalls in

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[78] The following analysis is derived from A. Bjeland's, "Popper's Critique of Panpsychism and Proto-Mentalism" *The Modern Schoolman,* 59, 1982, pp.233-254.

[79] Although perception is another primal aspect of experience, we classify it as a special form of immediate *impersonal* memory. See radical perceptual realm section above.

his reasoning. He takes *conscious awareness* as exemplary support for the idea. "After every memory loss (even upon waking up from deep sleep)," Popper notes, "it takes some little time before we can, as it were, re-assemble ourselves and become fully conscious."[80] He then considers that if memory were atomised incrementally in a particular way all conscious awareness would go. The reason being that, given the required minimal span of continuity of memory, we can imagine a thought experiment in which increments of memory loss are induced with a frequency and duration that exceeds the time required to 're-assemble ourselves' between them. Obviously in this scenario there would be no moments of consciousness or awareness at all, and Popper's experiment is backed up by current theories concerning the functioning of total anaesthetics.

One initial objection to this stage of the argument is that it is ambiguous. Popper allows that there exists, "something that may be described as unconscious memory - that is, memory of which we are not aware."[81] Presumably unconscious memory is a sort of sentience, and Popper must consider it differing in degree alone but not in kind from the sort of extinguished memory that he mentions may result from injuries, electric shocks or drugs. In many instances of so-called extinguished memory there is recovery of the lost material, which could only be the case if the two types were really one. And the business of re-assembling ourselves also seems to imply there being a state that, although less than fully conscious, is yet not devoid of sentience. Without guidelines to clarify the relation of unconscious to extinguished memory, we cannot properly evaluate the argument.

By far the more forceful objection however is that the argument has no direct bearing upon psychical realism. We know the doctrine does not conceive the sentience of elementary particles as states of conscious awareness, but of radically diminished sentience, rudimentary and unconscious. Popper's thought experiment of atomising memory only does away with forms of conscious awareness. Yet he wrongly asserts that the conclusion of this first stage of the argument,

> speaks strongly against the theory of panpsychism according to which atoms, or elementary particles, have something like an inside view... that

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[80] K. Popper and J.C. Eccles, *The Self and Its Brain.* NY: Verlag, 1977, p.70.
[81] K. Popper and J.C. Eccles, *The Self and Its Brain.* NY: Verlag, 1977, p.69.

constitutes the unit... out of which the consciousness of animals and men is formed.[82]

In the second stage of the argument, Popper tries to firm up this claim with data from contemporary physics to the effect that, "elementary particles have emphatically no memory... are completely physically identical whatever their past history."[83] The required memory-like states are ascribed in this instance if the entities differ in some dispositional capacity due to individual past influences from other elementary entities. The scientific basis is the fact that present physical theory does indicate that some elementary physical entities of the same class, namely two isotopes of the same atom, despite whatever differences in their past histories are physically completely identical in character and yet extrinsically or positionally different, that is to say are not numerically one and the same.

Popper concedes that at least some entities normally regarded as inanimate occasionally display memory-like states. "Steel 'remembers' that it has been magnetised. A growing crystal 'remembers' a fault in its structure."[84] Ironically both are problematic examples for the psychical realist in that they are not clear-cut cases of unified individuals. At any rate, steel bars and growing crystals may or may not show differing responses due to the effects of influence in their histories persisting in their present internal states. The psychicalist answer would reflect whether the individual sentient ingredients involved add up into a more purposeful and unified individual displaying a higher degree of sentience. But it is already consistent with Popper's memory-like criteria to allow a low-level sentience in both of these cases. The fact, if it is one, that some objects commonly considered inanimate occasionally display memory-like states commits Popper to some sentience story or another. And he would no doubt opt for the low-level atomistic version, given his resistance to the notion of emergent novelty, for that version allows in the least. Again, Popper is ambiguous on this point.

Crucial to the argument is the manner and extent to which present physical theory indicates that some elementary entities are completely physically identical in character. What Popper has in mind is the way different isotopes of the same atom work as 'mutually substituent variables' in the models and mathematical formulations of contemporary physics. But such mutual substituency is the

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[82] K. Popper and J.C. Eccles, *The Self and Its Brain.* NY: Verlag, 1977, p.71.
[83] K. Popper and J.C. Eccles, *The Self and Its Brain.* NY: Verlag, 1977, p.71.
[84] K. Popper and J.C. Eccles, *The Self and Its Brain.* NY: Verlag, 1977, p.71.

product of the external viewpoints and the consequent degree of quantitative abstraction that science engages in, viewpoints manipulated in part by concerns as to the limits on range of scientific interests and the aesthetics of simplicity. Popper admits that, "what we call the laws of physics are the results of our search for invariance,"[85] and recognises that this search for invariance is conducted within the context of restricted, more or less pragmatic, problem situations. Thus the purported identity is but a function of current scientific affairs, and any assertion of an absolute absence of differing dispositional capacities is unfounded. It may be that present scientific acumen leave those capacities undetected. Notice that the uncertainty relations used for interpretation at the quantum mechanical level of analysis reveal the aprioristic character of the suggested identity of separate elementary particles. The probabilities are laid out in such manner that they simply cannot be falsified. But But to infer an absolute identity from this present conceptual set up is surely to confuse an epistemological claim with an ontological one.

Hence, contrary to Popper's assertions, it is not at all clear that memory is entirely ruled out by the findings of contemporary science, and Popper's argument fails to provide a general refutation of psychicalist theories which assign a foundational role to the nature of elementary entities. The patterns of scientific development regarding that nature do not in themselves deny this sort of evidence but rather expose unwarranted conceptual limitations that impede research possibilities.

§ The Feeling Idea: An After-Word

In this final section we come full circle by returning to the obstinate objection that it remains inappropriate, despite the cluster of arguments already presented, to ascribe various aspects of 'feeling' to the activities of the world's most minute entities. It simply seems a misuse of language - 'words on metaphysical holiday' - when so employed, for the analogy is being stretched too far to make any sense. A proper response to address the point cannot help but touch upon issues already made plain, but a separate summary attempt at first drawing out the embedded phenomenological emphasis and then sharpening up the relevant reasoning that undergirds the analogous use of 'feeling' may shed additional metaphysical light.

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[85] K. Popper and J.C. Eccles, *The Self and Its Brain.* NY: Verlag, 1977, p.14.

An analogy (of any kind) only serves if a degree of understanding is there on one of its two sides at the outset, to be reapplied to further that degree on the other. Perhaps when it comes to the idea of feeling the trouble initially arises with the would-be more informed side. Arguably the psychical realist and the objector begin with respectively broader and narrower working knowledge of what 'feeling' is understood to mean. It is important then to point out that Whitehead's and Hartshorne's initial commitment to psychical realism, and the ensuing rejection of materialism and dualism, were based on phenomenological and psychological insights into the inseparability of sensory qualities from a more simple sort of feeling quality.

> In introspection, really retrospection, the direct datum is previous human feeling; in sensation the datum is previous subhuman feeling. This means that direct experience, even apart from behaviour, shows that the word *feeling* applies more broadly than merely to mammals or many-celled animals.[86]

Each philosopher independently discovered human sensation to be this form of human awareness of subhuman feeling, disclosing the essential 'feeling of feelings' quality of immediate sensory experience. Hartshorne hints at an inadequate experiential analysis in suggesting that, "those who fail to find experience as itself a datum are those whose conscious attention is to the data of previous perception rather than to the previous perceiving - and remembering - itself."[87] Careful phenomenological analysis rather reveals both the experiencing and experienced object distinction and the temporal spread in experience that supports that distinction. Hence Whitehead and Hartshorne can also explain vague normal (as well as very intense special) forms of physical pleasure as being a participation in their own 'bodily lives', that is in the feelings of their cells, which presumably are remote from their own standard higher feelings, but are shared in experience all the same. In this way they arrived at a valid account of the emotive content of those sensations that are the only directly perceived qualities (in the more than merely structural sense) of physical reality, and found it quite natural to apply a generalised sense of 'feeling' to describe the (relatively) independent activity of those sensations.

Thus far the suspicion is that this more informed phenomenological standpoint, which was set out more fully when introducing prehension above, leads to an easier - indeed less extended - use of analogy from experience, given

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[86] C. Hartshorne,. "Why Psychicalism?" *Process Studies* Vol.6,1, 1976, p.67.
[87] C. Hartshorne, *The Philosophy of Charles Hartshorne.* Chicago: Open Court, 1991, p.694.

the ever-present reminder of experienced subhuman cellular feelings. But this is only one outcome of that experiential emphasis. The argument from an admittedly flawed analogy may be all that we have to go on (save for metaphysical coherence factors), but it is well to recognise that the argument is brought in to extend what we already have in a limited form from memory and perception. Again, we know sentience from the inside from our own previous psychical states somewhat distinctly in personal memory and from other previous subhuman psychical states indistinctly in impersonal memory (perception), or from one's own past psychical states and from psychical states of bodily constituents. While not rendering behavioural cues that may suggest the presence of 'feeling' unnecessary, it supplements those criteria with a more direct criterion in a special case other than the introspective one. It remains true that beyond this special case we only have the behavioural criteria, but this also goes some way toward qualifying how 'feeling' is used analogously. Certainly prehension in our own instance, that of participation or feeling of previous feeling along with some sense of the future, that of dependence of actuality on other actuality, is analogically available for general application from the subatomic to the gods, for all these prehensive features are directly intuited in immediate memories and in bodily experience.

In the previous section the conceptual exercise amounted to stretching the analogy down to the level of particle physics. All the while we were careful to show that the only sense in which psychical realism implies feeling in particles is the extremely generalised sense that certainly does not imply anything as complex as reproductive capacities, genetic codings, nervous systems and the like - features that only occur in cellular and animal sentience. The warrant for taking this procedure ultimately down to particle physics was the need to unearth appropriate conceptual boundaries. "Early human societies had no clear notion of mere dead, insentient matter," Hartshorne suggests, "It required an incipient science of so-called inorganic nature to produce the concept. So one appropriate way to argue against it is with the help of physicists."[88] In the process of extending the analogy both the criteria and the concept were fully generalised. A variety of earlier investigations spelled out that the criteria include self-initiated movement and activity, unity or integration of the movements and activities, some degree of influence of the past and the immediate environment, and some expression of anticipation, desire, purpose, satisfaction

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[88] C. Hartshorne, *The Philosophy of Charles Hartshorne.* Chicago: Open Court, 1991, p.691.

for the immediate present and future. It is rather a more scientific than philosophical project to set out which are the final self-initiated and unified individuals. As for past influence, our treatment of causality showed how responsiveness to other things that in our experience appears as memory or perception cannot be denied even to these final individuals, since causality would then also be denied. As for purpose, valuation, satisfaction, it is important to realise that among the differences which the idea of feeling can tolerate are enormous contrasts in both space and time spans. Since physicists use ordinary words like movement, mass, slow, fast, in ways that would not occur to anyone not somewhat familiar to modern science, Hartshorne wonders if there is any warrant for prohibiting psychology from using ordinary concepts like response, stimulus, memory, preference behaviour and satisfaction, aversive behaviour and dissatisfaction, in the interest of understanding the genuinely self-active and unified individuals, the final units of nature.[89]

In addition, recall the simple logical truth that *groups* of imperceptibly minute active individuals may not appear as active or sentient, merely because the minute *individuals* comprising them are active. It is a fallacy to attribute the apparent inertia of a group to its members. The 'matter' referred to by physicists is best understood as referring to such groups, and meaning 'inactive for our senses though comprised of active individuals' resulting in an unfeeling whole whose minimally self-initiating components have no (or *are* no) appreciably conscious feelings, and for which causal determinism seems to apply all but universally. Hartshorne insists that psychical realism,

> fully admits the reality of the entities referred to in physics... but asks only, What are these individuals like? To the answer - They are as the physicist describes them and that is all that can be said - [psychical realism] replies that so far as all matters of detail are concerned this is correct, since philosophy has no jurisdiction over questions of detail, which belong entirely to the special sciences, but that there are some questions of principle which in the present state of the special sciences are likely to be forgotten. At present, at any rate, physics describes the mere spatio-temporal outline of things, but says nothing about the qualitative stuff by which there outlines are filled in to constitute realities.[90]

Focusing his philosophical analysis on what the 'special sciences' leave to one side, Hartshorne derives the following conclusions and consequent insight into the standard scientific biases.

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[89] C. Hartshorne, "Why Psychicalism?" *Process Studies* Vol.6,1, 1976, p.68.
[90] C. Hartshorne, *Beyond Humanism.* Chicago: Willet, Clark, 1937, p.177.

> 'Mind' and 'matter' are not two ultimately different sorts of entity but, rather, two ways of describing a reality that has many levels of organisation. The 'mind' way I take to be more final and inclusive, so that my position is the opposite of materialism. However, I recognise that the material mode of description is that part of the complete mode which is capable of scientific precision and that, accordingly, 'methodological materialism' or the restriction of attention to this mode, is a natural bias among scientists.[91]

The fundamental assumption, perhaps not universally shared amongst philosophers, but readily accepted by Whitehead and Hartshorne who both emphasise prehension, is that we can and do know something of the fundamental nature of things apart from and prior to the language and the categories we then turn to for making reports concerning that knowledge. Accordingly psychical realism does suggest a definite view about the ideal order of the sciences. Only a completed comparative social psychology could ever hope to provide complete empirical knowledge, of which physics would be the branch dealing with the most widely distributed dynamic individuals - 'trivial puffs of existence' - at the lowest levels of rudimentary feeling. Because of these limitations, of course, physics would be the most severely behaviouristic branch of such a psychology, a point reflecting the measure of our limited knowledge, not the measure of reality.

Since Hartshorne generally insists that there can be no such thing as an entirely negative fact - "But what would it be like to feel the total absence somewhere of feeling other than one's own? I think that there is no way this could be done."[92] - supplementing physics with a 'psychics' that affords an integrity and comprehensive completion to an otherwise depleted (and problematic) account seems all the more warranted. Feeling a complete absence of feeling would require experiencing something else that is incompatible with feeling, which logically could not co-exist with feeling, which we have previously shown to be inconceivable. In this light the concept of dead, inanimate, inactive individuals underlying reality appears as an instance of the unjustified scepticism that it really is, a more technical companion piece to the scarcely genuine scepticism of other minds. Metaphysics in any case is concerned with the generic features of feeling, not its specific or individual nuances. Any problems arising from the privacy and the peculiarities of the latter in no way prevents metaphysical generalisations of the former.

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[91] C. Hartshorne, *The Logic of Perfection.* Chicago: Open Court, 1962, p.217.
[92] C. Hartshorne, *Existence and Actuality.* Chicago: Univ. Press, 1984, p.40.

This leads us to a few final points regarding metaphysical language. Certainly metaphysical principles are more general than scientific ones, but are to be understood as on a continuum with scientific principles (as scientific ones are on a continuum with ordinary language principles) in that they are intended to afford literal accurate information about the world. However Whitehead begins his own monumental metaphysical treatise by owning up to the expected difficulties in metaphysical endeavours.

> Philosophers can never hope finally to formulate these metaphysical first principles. Weakness of insight and deficiencies of language stand in the way inexorably. Words and phrases must be stretched towards a generality foreign to their ordinary usage; and however such elements of language be stabilised as technicalities, they remain metaphors mutely appealing for an imaginative leap.[93]

From a perspective common amongst analytic philosophers, the upshot of the charge of 'metaphors mutely appealing for an imaginative leap' comes to considering ultimate metaphysical claims such as the universal application of 'feeling' a utter misuse of language, reducing it to what is perhaps philosophically worse than false: namely devoid of any meaning at all. In conceiving the smallest and greatest psychical entities, "it is hardly surprising that the meaning problem is here acute," Hartshorne likewise concedes, "We are in this matter trying to conceive what is most unlike ourselves but superior, as in dealing with atoms and particles, we are trying to conceive what is most unlike ourselves but inferior. Difficulty is to be expected in both cases."[94]

Aware that language breaks down when it seeks *explicit* rendering of the final generalities, Whitehead offers an alternative diagnosis. "Metaphysics deals with those notions that are relevant to the most general aspects of experience. Ordinary language was however made to deal with particulars..." and so develops a more constructive proposal, "Philosophy must redesign language in the same way that in physical science pre-existing appliances are redesigned." [95] Acknowledging that a precise language must await a completed metaphysical knowledge, the metaphysician must make do meanwhile with whatever tool-making capacities that are at hand. A balance must be struck between the utmost pragmatic uses of words and their more suggestive powers. To err toward the ordinary use results in the fallacy of holding to (thus limiting concerns to) the myth of a perfect dictionary. "In fact language has been formed chiefly to

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[93] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.4.
[94] C. Hartshorne, *Existence and Actuality.* Chicago: Univ. Press, 1984, p.39.
[95] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.11.

express such concepts. It is for this reason that language, in its ordinary uses, penetrates but a short distance into the principles of metaphysics."[96] To err toward the overly suggestive results not in deeper penetration but in unfounded speculation and finally loss in meaning. To take the psychical realist example of feeling, admittedly the issue is as remote from ordinary ways of thinking as some issues in contemporary physics. But in considering a metaphysical issue, neither physics nor ordinary language nor common sense exhaust the options worth considering. Philosophers must recognise that neither the bounds of ordinary language nor the programmes of contemporary science are necessarily definitive for all time. Comparative psychology has already expanded substantially in our time, as we have seen in discussing empirical issues related to the genetic argument, and we have tried to make the logical mainstays and conceptual advantages of feeling as a metaphysical category abundantly clear.

> One of the uses of philosophy is to help future scientists to transcend mere common sense, as Greek atomism and Platonic cosmology, (but hardly Aristotle, with his common-sense physics) helped early modern physicists. The inhibiting role akin to that of Aristotle is assumed by many philosophers today. It is well that some of us should take a different role.[97]

When we ponder the opening up of logical possibility, and the expanded conceivability defended earlier, the genetic argument and the analogic prove to be impressive companion pieces in advancing the case for psychical realism. We have now defined and clarified our position, elaborated on the role perception and reason may play in its affirmation, and examined the key argument forms put forth on its behalf. The case becomes all the more compelling, I submit, when accompanied by the most expansive metaphysical system erected in our time, and shown to serve as centrepiece to that system and as its most formidable support. We proceed forthwith to a detailed study of process thought and the psychical realism involved in that thinking.

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[96] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.167.
[97] C. Hartshorne, "Why Psychicalism?" *Process Studies* Vol.6,1, 1976, p.70.

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Metaphysics of Experience

"The true method of discovery is like the flight of an aeroplane. It starts from the ground of particular observation; it makes a flight in the thin air of imaginative generalisation; and it again lands for renewed observation rendered acute by rational interpretation."

PART ONE
The Process Ancestry

The process philosophical interpretation of reality represents a formidably high-flying and wide-reaching speculative endeavour, emblematic of a profound shift in metaphysics this century. With an ontological and epistemical priority of process over that which is in process, of what entities do over what they are, it aims at approaching reality as an abundance of process instead of as a set of things, of dynamic changes in lieu of static substances. On process reckoning, change in its many manifestations is the pervasive, predominant, principal feature of all that exists, and experiential events form the primary ontology. Reality originates in process and is inexorably characterised by process and is best understood in terms of process. The process philosopher also employs a modified form of teleological explanation, part pluralistic and part monistic, emphasising both the individuality of events and the internal relations that fuse them. The continual creation of greater wholes of integrated purpose is established, and an immanent pattern or principle of order is exhibited. An accent on creativity shows how it is constitutive of all experiential events; an accent on organicity displays how the division of psychical and physical or subject and object is overcome; and an accent on temporality outlines the nature of pervasive process at the core of the metaphysical system and basic to understanding reality. Thus with a process orientation all major ontological elements and categories are understood, all of reality's necessary features and the general character of its contingent ones are explained, all its value is thereby accounted for and its significance thereby indicated.

Pointing out its place as embedded in amongst a variety of significant philosophers and philosophical movements helps put forth a rough and ready

guide to the particulars of process thought. By and large, along with the rejection of Aristotelian substance and acceptance of the reality of change as ontologically fundamental, process thinkers tend to reject Cartesian certainty and accept pragmatic meaning as epistemologically fundamental, and they tend to reject Kantian transcendentalism and consider versions of immanent theism as metaphysically fundamental. They likewise reject Spinoza's radical monism as well as Hume's radical pluralism, and establish a reasonable mean of an integrated pluralism between the two extremes. Hegel's and anybody else's determinism, as well as Bradley's and anybody else's eternalism are also rejected as extremes while common sense principles of freedom under constraint and the reality of time are developed. Wittgenstein's, Husserl's, Heidegger's, and Sartre's critiques of metaphysics, arising from linguistic analytical, reductive phenomenal, wanting phenomenological, and radical existential outlooks, are typically dismissed or ignored by process philosophers as attacks on outmoded classical philosophical and theological models. These critiques have little in common with a metaphysics based on careful considerations of logical and coherent hypotheses, and their consequences in terms of applicability and adequacy to the facts informing and clarifying experience.

Thus far mostly what is rejected in the work of great thinkers has been mentioned, but the list of notable philosophers that in the main expound central tenets of process thought - in some cases unwittingly - is a long one, beginning perhaps with the Buddha and Heraclitus. Following these traces back to antecedents deep in classical antiquity, the process persuasion as a major philosophical tendency has had its adherents among eminent thinkers throughout the history of thought, in addition to its adoption in various forms by many of the great minds of our time. A definitive list of merely the main thinkers would have to include much that can be found in the medieval Socinus and the early modern Leibniz, in a host of modern philosophers down to the present century including Hume and Hegel, Fechner and Marx, Peirce and James, Nietzsche and Bergson, Alexander and Dewey, Mead and Montague, Berdyaev and Chardin, and most explicitly, in the recent process metaphysics of Alfred North Whitehead and Charles Hartshorne.[1]

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[1] See C. Hartshorne, "Ideas and Theses of Process Philosophers" in *Two Process Philosophers: Hartshorne's Encounter with Whitehead.* Tallahassee: American Academy of Religion, 1973, and *Philosophers of Process*, D. Browning ed. NY: Random House, 1965.

Turning to recent movements in the history of ideas, six additional 'isms' come to mind when locating the genesis of process thinking in that history. The first two, mechanism and vitalism, are dismissed as characteristically extreme and wrong-headed reactions to the advancement of science. In one direction the quantification of reality by Galileo and Newton fostered over-ambitious programmes of doing away with a class of superstitions whose range threatened to include all life and all subjective experience. In the other direction, an overly romantic reaction arose and gained some credence through dubious applications of early evolutionary thinking. From around the turn of the century the work of some process philosophers, notably Bergson, Peirce, James and Whitehead, represents a number of middle-path manoeuvres, ways in which the richness of subjective experience could be salvaged and given an account, but not at the high cost of either undermining the facts of mechanics or misconstruing and embellishing the discoveries of evolutionary biology. As to the four remaining 'isms', process philosophy does emphasise and apply aspects of Darwinism (though speculative claims of evolutionary cosmology are qualified), idealism (though neither in its transcendental nor subjective varieties), pragmatism (though verification constraints on metaphysics are qualified), and realism (though of a special critical variety based on an ontology of experience). Thus Darwinist, idealist, pragmatist, and realist themes are all accepted in broad outline though qualified and developed in terms of a metaphysical vision of process. This vision of process is finally more illuminating than any list of applicable 'isms', the real eye-opener (or mind-opener) being a shift of one's attention from things to happenings as the basic bits of the real, and the accompanying shift in emphasis on careful introspection for clarifying the experiential events of all kinds, human and nonhuman, that compose the world. The case for process philosophy rests as much on its adequacy to the facts of experience as on its coherence, and that experience includes not only eidetic investigation of one's one subjectivity but also the well-established teachings of the physical sciences.

One last point regarding 'isms': perhaps the most appropriate one to apply to this sort of philosophy is the phrase 'constructive postmodernism' coined by David Ray Griffin.[2] This is because process philosophers, as Griffin makes plain, share with their deconstructive postmodern counterparts a recognition of the

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[2] D. R. Griffin, *Founders of Constructive Postmodern Philosophy.* NY: Suny Press, 1993.

need to deconstruct various notions that were basic to modern and in some cases premodern world views. Yet they differ in that instead of recommending an anti-world view, that is to say an overcoming of all attempts to characterise the totality as a result of that deconstruction, process philosophers recognise the necessity and possibility of constructing new cosmologies that might be recommended as candidates for a more adequate world view.

More specifically, process thinkers recognise two fundamental flaws in modern philosophy: an ontology based on a materialistic doctrine of nature and an epistemology based on a sensationist doctrine of perception. The sensationist doctrine claims not only that all knowledge is grounded on perception, but that perception is to be equated solely with sense-perception, thereby eliminating radical empirical means to uncover important sources of knowledge. The materialist doctrine - either as a thoroughgoing eliminative materialism or as a dualism between mind and nature - claims that the ultimate units of nature are dead, inanimate actualities, completely devoid of experience, spontaneity or self-movement. Deconstructive postmodernists exploit these ideas, attacking the rationality, empirical givenness, and truth as correspondence they rely upon and the problematic outcomes they result in, and thereby reinforce the impossibility of constructing, or even holding, a comprehensive world view. The *constructive* postmodernist response to modernity's mistaken doctrines is rather to rework these flawed premises so as to make the construction of self-consistent, adequate cosmologies possible. Process philosophy is then perhaps more genuinely postmodern in pressing its criticisms into revision and not simply carrying those premises of modernity through to their logical conclusions. Through a return to an experiential organicism (indeed a psychical realism) and an acceptance of nonsensory perception (one outcome of psychical realism), it opens itself to the recovery of truths and values in a creative synthesis of both modern and premodern viewpoints, not only providing a positive meaning for the notions of the human self, historical meaning, and truth as correspondence, but also providing new possibilities for premodern notions of a divine reality, cosmic meaning, and an enchanted nature.

Although in our time 'process philosophy' has come to signify the elaborate and influential doctrines of Alfred North Whitehead, and further developments along Whiteheadian lines by Charles Hartshorne and other followers, and although the focus of the present investigation is on specifically Whiteheadian themes, bear in mind that any *philosophy* of process ought more broadly to

circumscribe a theory rather than a thinker, with issues worked out as pertaining primarily to a philosophical position more so than to any of its particular expositions. Thus, by way of introduction, a few of the more pivotal developments for the shaping of Whitehead's ideas through history stand out as worthy of more than a passing mention. We have already been pointed out for instance that the Buddha and Heraclitus are recognised as the earliest known proponents of a philosophy based on the primacy of process or change. Neither saw the world as a great aggregate of static things, but found that all things arise and pass away (the Buddha) and that everything flows (Heraclitus). Their general outlook on the nature of reality ran counter to commonly held views of their day, both in the eternalist religious views dominant in Eastern antiquity and Parmenidean absolutist and Democratean atomist views prevalent in Western antiquity. As such the Buddha and Heraclitus may accordingly be seen as the founding fathers of process philosophy. Perhaps Plato as well can be seen as an early ancestor of the doctrine. In many of his dialogues, most notably in the *Theaetetus* and the *Timaeus*, Plato argues that the world available to perception is forever undergoing change. And in the later dialogues he suggested that all things are ensouled, and that the soul is self-moved and so the source of all change, which again implies the universal presence of process or change. "Then the philosopher... cannot possibly accept the notion of those who say that the whole is at rest, either as unity or in many forms."[3] Yet Plato believed that such a thoroughly dynamic reality was ill-equipped for providing the stable, ordered backdrop required for rational understanding, description, and explanation. Thus he restricted the Heraclitean doctrine of flux to the world of changing perceptible particulars, while positing above this world another one of unchanging imperceptible universals ('ideas') to back rational intelligibility.

The first clearly articulated form of a process system in modern philosophy is found in the writings of Gottfried Wilhelm Leibniz. He discovered two crucial ideas taken up subsequently in every significant statement of a process metaphysics. First Leibniz believed that one's own present process of experiencing or active subjectivity is the only genuine individual encountered directly and distinctly in reality. And second he saw that the only hope of comprehending nature, therefore, is by conceiving it as a vast society of such active individuals, each somewhat analogous to one's own experiential state as a

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[3] Plato, "The Sophist," in *The Dialogues of Plato*, Vol.III, B. Jowett, trans. Oxford: Clarendon Press, 1953, p.402.

sentient entity. All else that figures in experience is mere phenomena, not really unified or individual at all, but much of it appearing as inactive continuous stuff due to being composed of active individuals far too similar and insignificant individually to register distinctly in sensory perception. From these ideas Leibniz conceived a world consisting not of things but solely of minute units of process called monads which are 'centres of force' endowed with an inner drive or 'appetition' akin to that felt in experience. A monad's internally programmed drive, Leibniz's thought, provokes its continual change as the course of its life history as one long process unfolds, in accordance with its integration in a vast co-ordinated totality made up not of things but solely of monadic processes. We might bear in mind, however, that due to the fact that these unfolding processes are programmed and 'windowless' in response to their surroundings, Leibniz did treat them as a kind of substantial backing to the world.

The next great thinker to propound process metaphysical claims and substantially advance a set of foundations to accommodate them was Charles Sanders Peirce. Peirce thought and wrote on a wide range of topics, aspired to write an overarching general theory of the cosmos, but fell short in the end of the 'cosmogonic philosophy' that he envisioned, leaving behind instead a set of papers (later collected in eight volumes) that he himself dismissed as 'a mere table of contents, so abstract, a very snarl of twine'. From these writings it is clear that the basic metaphysical backing to his many views on the nature of reality revolve around the notion of a world in continuous change and evolutionary development. He postulated a pervasive degree of cosmic evolution displaying itself through fortuitous variation (tychism), through mechanical necessity (anancism), and, in its most climactic and synthesising mode, through creative love (agapism). From these evolutionary principles Peirce identified in the experiential universe the attributes of firstness (tychism as a sign of the objective reality of chance or spontaneity), secondness (anancism as a sign of the objective reality of brute force, the direct impress of reality), and thirdness (agapism as a sign of the objective reality of love, the power of ideas to attract otherwise opposing actions). As these concepts indicate, Peircean metaphysics accepted a principle, adopted by subsequent process thinkers, that the essential or indubitable character of our own processes and habits in experience are also characteristic of the reality with which we are in relationship.

Peirce recognised that the dynamic evolving of reality affected everything, including our efforts at understanding. Hence even truth and reality were

construed to be pragmatically dynamic in accordance with the changing utility of cognitive resources. Note the stress on activity in Peirce's insistence that, "Doubt is an uneasy and dissatisfied state from which we struggle to free ourselves and pass into a state of belief."[4] Another key feature of investigation involves the process of interpretation, which Peirce construes in regards to the topic of interpreting signs or *semiotics.* Here again the emphasis is on process as semiotics means, "an action, or influence, which is, or involves, a co-operation of three subjects, such as a sign, its object and its interpretant."[5] Semiosis, a singularly important tool in the Peircean system, is invariably a *relational activity* involving three entities.

Peirce also felt that even the laws of nature were merely long-standing habits, and that even the bits of matter purportedly comprising reality's basic constituents were a kind of 'habit ridden mind' in a dynamic world. These basic constituents, suggestive of psychical realism, are ultimately engaged in working out their evolutionary development along teleological lines. "The so-called immutable laws of nature... are not ultimate, but are the expression and indeed the outcome of tendencies, associations and habits which spread and grow."[6] Nature, and all that is in it, was seen to be fundamentally continuous, spontaneous and alive in its selective evolving processes, guided by an interplay of a general, pervasive tendency toward order as against a persisting primordial element of pure chance.

William James is another formidable figure in recent philosophy who introduced many of the early process insights. In his extensive writings on philosophy, psychology, and religion, and in essays on popular topics, James was forever breaking away from old categories and forging new ones, and many of his innovative ideas promoted process orientations. Along with Bergson and Whitehead, for example, James relied on arguments along the lines of Zeno's paradoxes to show that static concepts are inadequate to the task of characterising the ever-changing flux that composes experience and reality. James believed that the world and that experience amounted to a sea of activity whose constituents were a multitude of changes that melt and fuse into each

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[4] C.S. Peirce, *Collected Papers of Charles Sanders Peirce*, Vol.V. C. Hartshorne and P. Weirs eds. Cambridge: Harvard Univ, Press, 1931-58, p.371.

[5] C.S. Peirce, *Collected Papers of Charles Sanders Peirce*, Vol.V. C. Hartshorne and P. Weirs eds. Cambridge: Harvard Univ. Press, 1931-58, p.484.

[6] As quoted in J.E. Smith, *Purpose and Thought: The Meaning of Pragmatism.* New Haven: Yale Univ. Press, 1978, p.141.

other in processes without absolute boundaries because, "each experience runs by cognitive transition into the next one... We live, as it were, upon the front edge of an advancing wave-crest."[7] In his mature metaphysical works he was preoccupied with the trying question of how to relate time and the dynamic experiential realities that take place through time to the fixed conceptual accounts so commonly accepted. He knew that, "We assume for certain purposes one 'objective' time..." but was all too aware that, "we don't livingly believe in or realise any such equally-flowing time."[8]

As with Peirce and Leibniz, the guiding principle behind the fluctuating nature implied in James' ontological outlook was derived from the nature of human experience itself. He recognised human minds as complex arrangements of active process, that provide a paradigm case of the process-imbued, psychical nature of all things. The initial 'blooming buzzing confusion' of physical processes confronting us preconceptually and the ensuing streams of consciousness constituted an exhaustive set of ingredients for a comprehensive metaphysical picture. And James qualified the 'physical' in his rejection of substantive philosophies that contend that the final real units of reality are enduring substances. He believed for example that, "the phenomena of habit in living beings are due to the plasticity of the organic materials of which their bodies are composed,"[9] a point expanded later to apply universally, given his psychical realist orientation. In developing his radical empiricism, James rejected the widely held doctrine that all direct or perceptual knowledge of the world is derived from sensory experience, and thereby rejected, in league with later process philosophers, the resultant psychical-physical dualist or physical monist ontologies. The first generally represented the predominant ontological outlook of the earlier modern philosophers such as Descartes while the second generally represented the outlook of more recent modern philosophical psychologists such as Wundt, but both outlooks depleted a phenomenological terrain in which James discovered that sensory perception comprises only a fraction of what is given directly in experience. He believed that the most fundamental entities in reality were in fact 'drops of experience' or momentary experiential events, a view taken up and developed extensively by Whitehead and Hartshorne, and one that marks James as a proto-process psychical realist.

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7 W. James, "A World of Pure Experience" in *Essays in Radical Empiricism.* NY: Longmans, Green, 1912, p.69.
8 W. James, *Pragmatism.* NY: Longmans, Green, 1907, p.93.
9 W. James, *The Principles of Psychology*, Vol.I. NY: Dover, 1890, p.104.

Two further themes in James that are developed by his process heirs are his pragmatism, which uncovered the dynamic character of knowledge and truth as it did in Peirce, and the recognition of creative novelty in the world, which appears as merely 'so much chance' from an outsider's perspective, but as 'free creative activity' from the inside. Following the lead from Peirce, James presented a version of pragmatism which likewise implied the prominence of dynamic process, with knowledge and truth not so much found as made through dynamic, directed, cognitive activity. "The truth of an idea is not a stagnant property inherent in it. Truth *happens* to an idea. It *becomes* true, *is made* true by events. Its verity *is* in fact an event, a process."[10] Also clearly emphasising process, James noted that novelty, "doesn't arrive by jumps and jolts, it leaks in insensibly, for adjacents in experience are always interfused, the smallest real datum being both a coming and a going."[11]

Perhaps more than any of his predecessors, Henri Bergson held process, as indicated through the temporal spread of lived experience, to be the singularly significant aspect for understanding reality. Not only is all of nature pervaded by the inherently temporal principles of dynamic process, but the human realm of life and consciousness is particularly infused with them. "Time is just the stuff [consciousness] is made of" and "...the material universe itself, defined as a totality of images, is a kind of consciousness," and each of its qualities, "consists of a succession of elementary movements."[12] Here we once again see evidence of a psychical realist persuasion. The flow of life for Bergson became the prime datum, one that is falsified by mechanistic and scientific philosophies. Like Peirce and James, Bergson imported into the theory of evolution a metaphysical dimension of creative process, of freedom, of novelty, of force - an *elan vital* to supplement accepted materialist, mechanistic interpretations. In Bergson's case, the key to that addition was the significance of the discovery of 'duration' and its role in setting out the 'dynamism' he developed, centring on the continuous nature of experience and the artificial nature of the divisions the intellect imposes upon it.

Being the matrix of experience, Bergson considered time to be the fundamental embodiment of reality in nature. Reality is equated with 'pure time'

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10 W. James, *Pragmatism.* NY: Longmans, Green, 1907, p.201.
11 W. James, *A Pluralistic Universe.* NY: Longmans, Green, 1909, p.153.
12 H. Bergson, *Matter and Mind.* London: Macmillan, 1913, p.313.

or duration, and duration is equated with process or change. Bergson saw that Zeno's paradoxes depend upon an untenable division of the flow into discrete units, and consequently recognised that mathematics could not capture the essence of flow, the active melting process of pure time or duration. With James, Bergson felt that conceptual thought, and indeed the so-called exacting sciences it fosters, merely abstract and approximate, substituting apprehended *statics* in lieu of understanding the *dynamics* of reality. Yet, despite that duration is of signal importance, it is elusive, for we experience events in time but not time as such. He turned instead to inspect the immediate data of consciousness, where he discovered, "pure unadulterated inner continuity, continuity which was neither unity nor multiplicity, and which did not fit into any of our categories of thought."[13] In analysing duration Bergson determined that it is an authentic processive existence, both creative and qualitative as experience reveals, as well as cumulative and continuous. It accumulates in the continuity that is represented by Bergson's notion of memory. His view of memory, consistent with later process philosophers, included recognising a metaphysical function alongside its biological and psychological ones, that of retaining the whole of the past in the present. Bergson's rendition of a process philosophy achieved a wide following in the early twentieth century, but suffered in the end due to its wholesale distrust of science and reason and its sole reliance upon intuition of the immediate experience of duration. Here his process philosophical followers were to make important amends.

The combined contributions of Alfred North Whitehead and Charles Hartshorne toward establishing and unfolding a fully coherent and comprehensive metaphysics in light of the pervasive and supreme reality of process are truly the most remarkable to date. Whitehead's ambitious achievement amounted to setting out a systematic attempt at developing a philosophy adequate to keen experiential sensibilities on the one hand, and accurate to the many key features of recent discoveries and revisions in logic, mathematics, and the natural sciences on the other.

> It must be one of the motives of a complete cosmology to construct a system of ideas which brings the aesthetic, moral, and religious interests into relation with those concepts of the world which have their origin in natural science.[14]

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[13] H. Bergson, *The Creative Mind.* NY: Philosophical Library, 1946, p.12.
[14] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.xii.

The resultant metaphysical interpretation of reality ranks as one of this century's great intellectual accomplishments. The bare statement of Whitehead's concept of process, apart from any elaboration in his masterwork *Process and Reality*, comes to thirty-six principles, twenty-seven categories of explanation, and nine categorical obligations. Recognising his one-time colleague's work as a tough act to follow, Hartshorne unabashedly accepted Whitehead's categories for metaphysical thinking, many of which he arrived at independently or through reflections on Peirce's philosophy. Inspired by Whitehead's lead, Hartshorne rose to the occasion of furthering process thought by contributing clear and broadening explications, rigorous revisions, insightful comparisons, and novel and provocative applications and extensions of Whitehead's principles, most notably in the philosophical analysis of religion and rational reflection, in psychology, in aesthetics, and even in ornithology. Among his many accomplishments, Hartshorne's writings on religious issues have led to the founding of a prominent school of process theologians, and his clear argumentation for basic process principles (often absent in Whitehead) and his astute situating of process thought in its philosophical context (often inaccurate in Whitehead), has promoted the continuing study and growing appreciation of Whitehead in philosophical quarters. Together the philosophies of Whitehead and Hartshorne represent the mainstays of a process philosophical movement in our time.

While the many adherents of the process movement share a common theme, there clearly are some internal variations as we have already seen, turning especially on which are taken as the paramount and paradigmatic sorts of processes. Although three separate kinds imply psychical realism, Whitehead for example generally takes the physical, Bergson the biological, and James the psychological as the preferred process for metaphysical purposes. Also, varying styles and emphases disclose orientations that range from the logical and scientific (Peirce and Whitehead), through the affective and intuitive (James and Bergson), to the religious (Hartshorne). In the choosing of points of elaboration and emphasis to establish a process metaphysical picture streamlined for more universal appeal, we inevitably neglect some of the overall aspects while overly accenting others. This is unavoidable in conveying the general spirit of the process enterprise, for keeping hold of the predominant ideas would otherwise require the making of many unlikely alliances. How far afield for

instance is Whitehead's respect for science from Bergson's, Peirce's reliance on logic from James', Leibniz's rendition of acts of God from Hartshorne's?

Since the central tenets of Whitehead's metaphysics are the most thorough and systematic philosophical work to integrate the core process doctrines, these are adopted as foundational and are the focus of the present approach. In the attempt to streamline Whitehead's ideas, however, it is hoped that the spirit of his process forebears and followers remains in sight, particularly of the many sympathetic to psychical realism. The literature pertaining to Whitehead's metaphysics tends toward exclusive discourse among Whiteheadian 'insiders' so to speak. This is due to a number of needlessly obscure or misleading terms introduced by Whitehead, that add to the already demanding intricacies of an elaborate metaphysical vision, that grew out of logical, mathematical, and scientific concerns of a man well-versed in these specialised methods and subjects. Here we employ alternative wording that befits a broader process public whenever feasible without loss of meaning. The one singularly important and altogether novel idea introduced in the last chapter and expressed as 'prehension' has been retained, but otherwise quite ordinary language suffices in phrases such as 'entities' and 'events', 'influence' and 'perception' and 'memory', 'creativity' and 'potentiality', 'reception' and 'integration' and 'satisfaction' that are adopted here.[15] It is also hoped that the psychical realist angle of the present exposition goes some way toward elevating discussion to more open and universal philosophical concerns. Hence the phrase 'Whiteheadian' as occasionally used here refers in the main to the spirit of his seminal ideas while for the most part leaving to one side questions regarding 1) the precise issue of how, when, and where Whitehead first stated those ideas, 2) the development of Whitehead's thought over a number of first mathematical, then scientific, and finally metaphysical writings and 3) the critical interpretation, assessment and alteration of those ideas in subsequent literature. As to the first two categories, the works of Victor Lowe and Lewis Ford remain fundamental references. As to the third, although Whitehead's writings have inspired a rich and varied response that continues to this day, Charles Hartshorne's voluminous output (which also continues, in this his 98th year) is eminent both in its depth of

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[15] Admittedly success is not always achieved, and though the project is warranted, Whitehead's own warning is justifiably noted. "A copious use of simple literary forms can thus provide a philosophy delightful to read, easy to understand, and entirely fallacious." *Adventures of Ideas.* Cambridge: Univ. Press, 1933, p.210.

appreciation and appraisal, and in its scope of creative, synthetic elaboration.[16] We turn now to an introduction of the central tenets of Whitehead's philosophical work.

PART TWO
Process in Eight Passages

In presenting a process primer - in eight passages from Whitehead's *Process and Reality* - the central tenets are laid out first in terms of a number of guiding principles introduced via the first seven passages, and then in terms of the functioning of the formative elements called to mind in the last passage, elements forever under the sway of those principles.

§ The Illuminating of Experience

> We experience more than we can analyse. For we experience the universe, and we analyse in our consciousness a minute selection of its details. (p.89)

Process philosophers recognise that the proper place to begin a metaphysics of experience is with the whole of experience itself, and from within that whole with whatever it is that is common to all experience, in as much as it can be determined. There are two key reasons for such an orientation: the overcoming of the bifurcation of nature into its psychical and physical categories, in the main by uncovering a psychical aspect at the core of all reality; and the attempt to employ that part of reality that we know most intimately, namely our own experience, as the most revelatory clue to the nature of all reality. An appropriate focus is then the careful analysis and the sifting through of the components of whatever we encounter experientially.

At first glance it may appear, and indeed does appear in the sights of several philosophers, that since what we know best is our own experience, we must therefore begin with human conscious experience in any attempt to derive an experiential metaphysics. But the process philosopher proceeds to more careful considerations of experience as such. The initial insight is that while consciousness is always experience, experience need not always be conscious. In fact, even within conscious experience there is quite a lot of variance - whether conscious activity is rational or not, it always carries some

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[16] See especially V. Lowe, *Understanding Whitehead* and *A.N. Whitehead: The Man and His Work*, Vol.I: 1861-1910, Vol.II: 1910-1947. Baltimore: Johns Hopkins Press, 1951, 1985 and 1990; L. Ford, *The Emergence of Whitehead's Metaphysics: 1925-1929*. Albany NY: Suny Press, 1984; C. Hartshorne, *Creative Synthesis and Philosophic Method* and *The Philosophy of Charles Hartshorne*, L. Hahn ed. Chicago: Open Court, 1970 and 1991.

emotional tone - which gestures toward the presence of something underlying conscious experience. Nowadays these are well-documented psychological and physiological facts, but aside from any scientific evidence it is clearly the case that sometimes we experience in our sleep. Otherwise there would be no cause to believe that we occasionally undergo drafts or dreams or the onset of disease in sleep. A further insight is that those experiential elements that lie beyond the overlap with conscious experience, in being ever-present experientially, are all the more illuminating for philosophical penetration.

The task of isolating these more basic elements, and then of determining their illuminating nature, is somewhat confounded by the importance consciousness plays in our everyday experiential reality. But under a constraint to conscious experience philosophers have had little success in getting beyond their immediate epistemic situation and on to an awareness of ontological facts. If conscious subjective experience alone is kept in focus, then human beings are severed from all other beings, and the problem of overcoming that division arises. But Whiteheadians contend that we are not separated from the rest of reality by an absolute rift based on distinct subjective difference. We participate in the reality we are trying to understand, and the common ground we share with it obviously does not consist in a species of human consciousness which only obtains in a vanishingly small portion of the total. Conscious experience heightens awareness of but a fraction of reality, and for beings of our own ilk alone; far from being a basic category, its endurance is variable even within the realm of human experience. In developing an adequate metaphysical picture, we must discover the primitive experiential elements shared by humans, other animals, lower life forms, and inorganic material and put them to use. And it is here, in cancelling the equating of consciousness with experience, that the initial impetus toward a psychical realist component to process metaphysics first begins to appear. One of the keys to process philosophy is the delving beneath those aspects of experience unique to consciousness in order to discover what we share in common with the rest of reality, for it is these more subtle aspects of our own experience that provide the clues for understanding the metaphysical structure of the world.

§ The Sentience of Events

> The subjectivist principle is that the whole universe consists of elements disclosed in the analysis of the experiences of subjects. (p.166)

Process philosophers maintain that the final real ingredients of reality are its momentary events and that these events are experiential. They are conceived as the existing happenings, the real occurrences, the 'actual occasions' or 'actual entities' that take place. Such entities are 'the final real things of which the world is made up' according to Whitehead, 'entities' again being employed in a broad, somewhat vague fashion gesturing between things and processes. These basic ingredients of reality are also described as complex, interdependent 'drops of experience' and the class of them ranges from God all the way down to the 'tiniest puff of existence'. They are both ontologically primitive as the sole units comprising the world (the 'sentient entities' of the psychical realist), and of paramount importance as displaying the rich character basic experience possesses.

One need only introspect to get an initial feel for their nature, for isolating and considering one moment in the series of momentary experiential events as lived through provides a keen indicator of the idea. As with many of their process forebears, the experience of embodied existence is the paradigm of exemplification for Whitehead and Hartshorne. No momentary event in a person's life exists in complete isolation. In this case the aspect of interdependence is apparent in the present influences from previous momentary events and from anticipations toward potential future ones. And the aspect of complexity is shown in the accepting, ordering, and responding entailed by the ongoing assessment of influence, enjoyment of feeling, and aim of anticipation involved in experience. This implies a further feature of momentary events, namely their temporality. Any one moment of experience seems to exist as an event at a present time for a mere split second. There was another such event just prior to it, and following swiftly upon it will come yet another. Although these experiential events seem to flow into each other, the phenomenological evidence suggests that each has its individual moment of awakening as it were into the present. Whitehead believed that this flash of being-present represented an indivisible 'quanta' of experience, happening 'all at once' with its internal span of duration amounting to an undivided now. The length of the duration of experiential events is of course very short-lived, generally only spanning

a fraction of a second, but the fact that it has some dimension of temporal spread as verified through introspection is of signal importance for process philosophy.

The proper way to conceive of experiential events as being constitutive of the world is by noting the psychical feature of the present moment for every sort of existent entity. "All final individual actualities have the metaphysical character of occasions of experience."[17] While one's own conscious momentary experience serves as an exemplar, the idea is that every animal's experience, every living cell, every elementary particle is likewise endowed with some level of momentary temporal spread, extraordinarily short in most instances. Yet, despite that the same basic principles direct the existence of experiential events into the same basic metaphysical structure throughout the world, and despite that physicists likewise study a world pervaded throughout by vanishingly short event durations that share a basic structure, the experiential events or actual entities that are metaphysical primitives of process philosophy are not to be identified with scientific notions of particle physics. The latter may prove suggestive of the presence of the former, but the two are not one. Process philosophy holds that experience, human or nonhuman, is co-extensive with reality, but that the data of science refer to abstractions from current observational know-how while the metaphysical hypotheses bring rational reflection to bear on necessities displayed in experiential realities.

§ The Reality of Becomings

> How an entity becomes constitutes what that entity is... Its 'being' is constituted by its 'becoming'. This is the principle of process. (p.23)

As discussed in the opening chapter, process philosophers reject the substantive philosophical view of a world composed ultimately of substances with changing properties. In contrast, Whitehead and Hartshorne locate the ultimate actualities in the processes of becoming. The experiential event of an actual entity's coming into existence is the only being it possesses, and these becomings are more fundamental than the beings that their activity seems to bring about or imply. Indeed becoming includes being: change, process, and event define substance, product, and stasis.

Reality then is not composed of a static aggregate of substantial beings, but is rather experientially alive, involved in the ceaseless activity of reacting to

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[17] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.166.

influence from what has already become, and acting on what might next come to be. The world is therefore dynamic and creative through and through. Whitehead and Hartshorne understand the process of reality as concerning 'the becoming, the being, and the relatedness' of nothing but its actual experiential occasions. There is nothing beyond these becoming experiential events, apart from them, "there is nothing, nothing, nothing, bare nothingness."[18] Thus the distinction between one experience and a world is one primarily of number: the becoming of a one and the becoming of a many. Both are completely accounted for in an exhaustive survey of processes of becoming.

Once the activity of an experiential event ceases, once an occasion of experience is no longer becoming, it 'perishes' into the past to be superseded by further present becomings. While its 'subjective immediacy' exists no longer, its 'objective immortality' continues as influence in subsequent becomings. The existence of an experiential event, indeed the actuality of *every* experiential event, is thus logged as 'stubborn fact' inherited by whatever follows, for these facts can neither be altered nor avoided by their experiential heirs. Thus a universal form of memory, as givenness of the past, is basic to reality. The process of becoming is first the process of accepting the being of past becomings, second the process of integrating that being with its own contributed becoming, and finally the process of casting its new integration onto the stock of stubborn fact of being in subsequent becomings. Once again introspection verifies this processive nature in the case of our own experience. In present experiential events one has to take into account previous ones, and what transpires in living through the present event becomes a 'real component in other living immediacies of becoming'. Whether a moment ago one decided to climb a tree, recite a poem, or ride a bike, being enthralled in the midst of that activity in the present requires accepting and integrating that past decision into the present experiential process. And should one then initiate a fall to the ground, an ad-lib of the lines, a turn into approaching traffic, the ensuing experience would naturally have to reckon with implications of those decisions.

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[18] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.167.

§ The Ultimate of Creativity

> Creativity is the ultimate behind all forms, inexplicable by forms, and conditioned by its creatures. (p.20)

The notion of creativity is of singular importance for process metaphysics. Depending on how it is interpreted, it represents either one or two of the four formative elements in the process system, along with worldly experience and worldly potential and (on one interpretation) a partly worldly God. Creativity is the dynamic principle intrinsic to every event in the world and to the world at large. It signifies the most general trait that all the world's events have in common, how in every event 'the many become one'. "No entity can be divorced from the notion of creativity," Whitehead contends for it is, "the universal of universals characterising ultimate matter of fact."[19] The fact that every experiential event is creative gives rise to the pervasive feature of process in the world. But though it is the ultimate principle, it must always be instantiated in specific and real events; it is not somehow more real than those events, for it has no independent reality of its own. Only in virtue of its embodiment in experiential events does creativity have any actuality. The same is true in the other direction as well: actual events cannot exist except as instances of creativity. They cannot be meaningfully separated from the ultimate metaphysical principle. The ultimacy of creativity and the ultimacy of self-creative acts of becoming coincide, implying that every experiential event is a self-creative one.

This leads on to another characteristic of process creativity: the most fundamental feature of the world is its 'creative advance into novelty'. The idea of creativity characterising actuality must be balanced against the idea of actuality characterising creativity. It is both the *ground* of individual processes of becoming and a *receptacle* for determinate outcomes of all processes of becoming, a set of distinctions developed in the third part of the present chapter. In this manner creativity accounts for the organic unity and ongoing temporal order in the world at large. As to the first, Whitehead sees the process of creation as 'the form of unity of the universe' whereby all creative activity constitutes one process connecting all actuality together. As to the second, 'the throbbing emotion of the past' is seen as creativity 'hurling itself' into factual status for subsequent events. In addition to how *within each event* 'the many become one',

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[19] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.31.

from each event the ongoing temporal world is 'increased by one'.[20] Creativity for a creature becomes creativity with the creature as it passes into another phase of itself, to then be the creativity for a new creature. Implied is another characteristic regarding the overall nature of the universe. It is plain that the reality and role of creativity means that causal determinism is not absolute in the world. There are guiding causal conditions in the form of somewhat evolving laws of nature, due to the rigours of the habit patterns that past becomings instantiate. But these contributing factors are never absolute, for there is always at least an iota of creative activity in each present experiential event.

It is clear that creativity plays a comprehensive role in the system, one which cannot be expressed as a function of the roles played by any of the more limited elements. This led Whitehead himself to admit in *Process and Reality* that it is ultimately impossible to define creativity or to explain it according to more specific concepts. It is a terminal concept, the point at which explanation must cease. Yet Whitehead and Hartshorne agree that creativity alone is not sufficient for establishing a world that fits the description of the one we inhabit, for a mere system of mutually influencing events is compatible, for instance, with a static timeless world, a concept wholly rejected as clashing with central process convictions. There must be a further higher principle of order of one sort or another as well. Here again, psychical realist ideas are introduced, but at a more cosmic level. Given the ultimacy of creativity, it is interesting to note that if the idea of a God is introduced here, the system requires that God too is in process, that God is influenced by the creatures, and that even for God the future is really open or partly indeterminate. The reason for these unique departures from more standard theological lines becomes clear when the process ontological principle is elucidated.

§ The Ontological Principle

> The search for a reason is always the search for an actual fact which is the vehicle of the reason. (p.40)

In the second chapter we clarified that manner in which Whitehead brought his rational prowess into line with an empirical emphasis. His commitment to strong empirical criteria in doing speculative philosophy, 'applicable and adequate' to the facts, is spelled out in stating his ontological principle in the

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[20] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.32; *Adventures of Ideas*. Cambridge: Univ. Press, 1933, p.227.

preface to *Process and Reality.* In offering metaphysical answers, none are to be accepted if they do not refer in one way or another to something actual, to something that exists. This follows directly from the recognition that experience in its many diverse forms is co-extensive with reality. We must appeal to the actual experiences we undergo if understanding and explanation are to be grounded in the empirical facts of experience. And that grounding is essential, for Whitehead believes that, "there is nothing which floats into the world from nowhere."[21] The ontological principle applies even to universals and other abstractions, which on this view are only real in concrete actualities, with a special form of actuality introduced, as we shall see, in such cases of seemingly unactualised possibilities. This is particularly crucial in the kind of hypothesis-test speculative endeavours which process philosophers promote. The better to disassociate their work from over-speculative and thus ill-fated classical metaphysical models, Whitehead and Hartshorne try to keep to methods that partly mirror those of theoretical science, while supplementing empirical experience with the results of rational reflection beyond scientific scope occasionally. Even so, 'no actual entity, then no reason' essentially sums up the ontological principle of process philosophers.

§ The Relativity Principle

> Every item of the universe, including all the other actual entities, is a constituent in the constitution of any one actual entity. (p.148)

We noted earlier how the becoming of actuality involves a taking account of other past becomings. No experiential events could exist in utter isolation, for they possess other experience, the 'stubborn facts of past becomings' as component parts of their present existence. Thus experience and reality are pervaded by asymmetric yet social relations, external at one end but internal at the other, instantiating both dependence and independence among experiential events that are 'each suffused with modal presences of others'. Every present experiential event (becoming) is essentially relative to its internal world of past experience (being), it is a 'feeling of feelings'. "It belongs to the nature of a 'being' that it is a potential for every 'becoming'."[22] Subsequent becomings depend on prior beings while the prior beings are independent of subsequent becomings. Whitehead derives this idea of the fundamental relativity and interdependence of all reality from his conviction that the world is best

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21 A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.244.
22 A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.22.

understood as more akin to organisms than to mechanisms. Mechanical devices are composed of essentially independent parts organised along mechanically functional lines, with relations between the parts imposed from the outside, whereas organisms are made up of essentially interdependent parts organised organically, with relations between parts creating unified wholes themselves. It follows that, as organisms, we can again look to our own experience as the paradigm for the relativity of relatedness in the world. We direct attention to objects of experience, and our felt concern reflects degrees of attraction and aversion regarding the influence of those objects, and these are internal to our present experience of them. The direct impersonal memory introduced in our discussion of 'prehension' in the last chapter, for example, displays how one's own *immediate* past is often intense and always intimate, and the consequent influence quite large. Accordingly the 'primary principle' for understanding the orders of actuality established by the relatedness that holds among the individuals in reality is the interest of 'experience in other experience' or of 'subjects in other subjects'.

Some of the ramifications of the principle of relativity include the notion that since all experience is a kind of sharing in previous experience, the most basic kind of activity is a kind of sympathy, albeit most often with *intimately related* past experience. This suggests that self-interest is not the principle of motivation in our actions, nor the chief justification for altruistic activity. Other-directed experience is at least as natural as self-directedness on process grounds. Another ramification is that since all experience involves felt concerns made up of attractions and aversions to other previous feeling, aesthetic values are real and primary features of reality. And since the present experience involves a creative integration of all past experience, the relativity principle implies that some altogether genuine values are inevitably incompatible, that is to say there exist mutually exclusive yet real values in the world. Finally, though the ontological principle implies that the 'being present in another entity' entails the presence of every last whiff of past existence in present experience, it need not counter intuitions necessarily. We accept scientific constructs for instance, that entail that we are under the gravitational pull of every distant celestial sphere. By the same token we may 'allow for degrees of relevance, and for negligible relevance' in entertaining how every past event has its pull in present ones.

> It dwells upon the tender elements in the world, which slowly and in quietness operate by love; and it finds purpose in the present immediacy of a kingdom not of this world. Love neither rules nor is it unmoved. (p.343)

It is primarily from the notion of value that the idea of God initially enters into the process model. First from a religious perspective, there is the need for the belief that the values achieved in the world are not simply lost as they fade from human memory and record. There are determinate truths, some good and some not so good, about what has taken place and what is taking place in the universe. And God is in one sense conceived as the storehouse of all that achieved value thus far, and in another sense the provider of a 'lure' for the future achievement of any additional value. As Whitehead puts it, "The truth itself is nothing else than how the things of the world obtain adequate representation in the divine nature," for God is, "the ideal companion who transmutes what has been lost into a living fact within his own nature."[23] To be sure, affirming God's existence in response to this religious sentiment may not help determine what in fact is true, but it can help determine what truth itself is and how it can exist. What is true on process reckoning is that which is known in the perfect memory of God. For when we consider our thoughts as true, we presuppose some structure to which our formulations more or less adequately approximate, and if we are thinking of the world in its entirety, we presuppose that structure that answers to the description of God's perfect tallying of all fact. Undeniably this position on truth does raise some doubts, even within theological circles, and we address some of them in terms of creativity and temporarity below.

Another aspect of value that is related to the God principle in process philosophy concerns the 'forms of definiteness' or the unactualised potentiality that helps complete the becoming of experiential events. The influence from stubborn facts left by the mark of past becoming events does not exhaust the material available to present events. Along with these past possibilities that have become actual there are also potential possibilities that have not been actualised. To keep to the ontological principle, these potentialities cannot 'float into the world from nowhere' and so God is understood as entertaining all of them in present divine experience. The term 'potentiality' adopted here is somewhat analogous to 'universal' or 'form' ('eternal object' in Whitehead), but is meant to draw attention to the presence in them of an urge toward actuality.

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[23] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.12.

That emphasis becomes important when an option to subvert functional aspects of God solely to dipolar creative process is explored in the more in-depth treatment of creativity that follows. Hence from a religious point of view - in as much as religious, moral, and aesthetic values can loosely be grouped together - God provides both a standard and a source for the achieving and retaining of all value.

Secondly from a scientific perspective, an analysis of the world into partially self-determining events requires some principle of order and novelty that cannot simply be identified with the multiplicity of creative experiential events themselves. In the picture of a world of process as outlined, there are events that exist for a moment and then perish, thereby obliging their successors to take some account of them. Then there is creativity as the ultimate underlying metaphysical principle of the universe, the sheer ongoingness of nature. Neither of these factors singly or in combination seem capable of explaining the concrete particularity of what in fact becomes. In a world comprised exhaustively of partially free experiences, order can be made intelligible only through the idea of an all-inclusive ordering principle, whose purposes order the world through becoming internalised in creative activities, somewhat as our purposes order our bodies through becoming internalised by our bodily parts. Reflect again on experience: the present momentary experience as lived through is never simply the product of past experiences, important and determinative as these are. If so, experience would simply be part of the world machine, and no alternative responses to situations or creative decisions would be possible. Yet the opposite is not the case either, for if so chaos would ensue. We do have constraints on what we do, we are compelled toward certain acts and away from others. Although we cannot but be affected by the past, just how we interpret it and value it and transmit it to the future is decided in the present experiential moment. And these moments, the only existing entities in a world of process, require some principle of order and novelty, of limitation and potentiality. For Whitehead and Hartshorne that principle is God, while for some subsequent process philosophers (addressed in our discussion on creativity below) that principle is the evaluative aspect of the two-fold nature of an ultimate creative advance.

These are only two (rather cryptic) presentations of a whole cluster of reasons a process God is often postulated, a topic to which we return in the final chapter. Insofar as these reasons constitute an argument at all, from the scientific perspective as outlined it is primarily the traditional cosmological one from the

order of the universe to a ground of order, and from the religious perspective as outlined it is the traditional teleological one offering a framework of value retention from which to derive direction for a meaning of life. Neither of these on their own of course go unchallenged in the relevant philosophical literature. And yet, as to the former cosmological impetus, the heyday of refutation occurred when, after 18th century theists and scientists alike wedded themselves to a view of the complex machine and its maker scenario, a particular vulnerability arose when a century later evolutionary processes focusing on natural selection became the dominant paradigm. But the new understanding of nature did not, any better than the old, *explain* the order of nature. The emergence of the living from the inorganic may be viewed as a random variation, but Whitehead was quick to point out that it certainly has nothing to do with the survival of the fittest. A stone he argued is far more capable of survival than a plant or an animal.[24] In the present century, with support from that new evolutionary thinking and from Whiteheadian psychical realism, process thinkers give up the previous understanding of the inorganic as wholly inactive, inanimate lumps of matter and set aside the image of the purely material machine, and find that the problem of explaining the orderliness of things reappears with intensified force. The problem of order recurs however we understand the nature of the world, for some other force besides variation or survival seems to be at work. Order is indisputably there and we can view it either as entirely imposed or as arising out of the nature of things themselves or as a bit of both. God and psychical realism in process thought represents one version of the 'both' option. And as to the latter teleological impetus for postulating God, if the adequacy of a philosophical scheme be tested against coherence and adequacy in explaining all experience, then the somewhat exceptional elements in conscious experience roughly classed together as religious and moral intuitions must be given an account just as much as the findings of natural science. The God of process is one such account.

But with these motivational and conceptual developments, and a host of more refined alterations that lie outside our present range of concerns, the opportunity is open in process thought for conceiving God as on the one hand something of a philosophical principle, hardly echoing the 'unmoved mover' and even less the 'imperial ruler' or 'ruthless moralist' imagery of old; but on the other hand as something that 'dwells upon the tender elements' providing the wherewithal that

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[24] A.N. Whitehead, *The Function of Reason.* NJ: Princeton Univ. Press, 1929.

gestures toward greater and more integrated value through sympathetic participating and inspirational luring in the world. As such the evaluation of 'the God principle' may very well turn finally as much on one's temperament as on one's reason. At its leanest, the concept is perhaps best understood as simply a storehouse of and a drive toward what is conceived to be of absolute value - a changing absolute as it were, one accruing new value ceaselessly and adjusting accordingly, and an absolute that is accessible to the atheist and to the religious devotee alike, intelligible at any rate to all who can understand the idea and can recognise the presence of value.

§ Ingredients and Recipes

> The metaphysical first principles can never fail of exemplification. We can never catch the actual world taking a holiday from their sway. (p.4)

With a thumbnail sketch of the general ideas at hand, there is yet one final aspect of the process model to be drawn out and explained. It is how the four key ingredients of reality - simply put, its events, its potentialities, its creativity and its value - how these formative first principles actually proceed through the integrated phases of 'their sway' as the process of reality. But a few qualifications are in order at the outset. First, the four general terms chosen here are meant to allude to more specialised phrases particular to the formative elements in Whitehead's scheme. We inevitably lose a degree of subtlety in doing so, but we establish a broad, more accessible process base, drawing on work from a wider range of relevant thinkers, and alienating fewer of those approaching process thought from other philosophical and even non-philosophical standpoints. Second, Whitehead was emphatic in his insistence that the expounding of metaphysical ingredients and cosmological recipes does not indicate 'dogmatic statements of the obvious' but rather 'tentative formulations of the ultimate generalities'. Process philosophers, owing perhaps to the dynamic core of the doctrine, are forthright in acknowledging how any speculative endeavours aimed at framing 'coherent, logical, necessary systems of general ideas' for the interpretation of 'every element of our experience' are bound to be wanting in any number of ways. This is especially so in a case as enterprising as Whitehead's in which a monumental process vision is applied, "to construct a system of ideas which brings the aesthetic, moral, and religious interests into relation with those concepts of the world which have their origin in natural science."[25]

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[25] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.xii.

In accounting for every element in experience the process metaphysician is most certainly in the business of offering (hopefully) more and more discriminating hypotheses, but surely these eventually require much in the way of testing.

Whitehead likened the procedure of interpreting the facts of experience to the flight of an aeroplane. Interpretation involves examining these facts, disclosing the more general patterns that underlie them, and noting how these patterns may predict still further experiential facts. Hence there is a movement from the particular to the universal and then back to the particular. Just so with philosophical schemes: taking off from experience, to be formulated in the 'stratosphere' of abstraction, and then returning to experience for the verification of predictions. Not only does the landing verify the abstract theories, but it also reveals otherwise unnoticed elements in the facts initially observed from the ground, where the view is more selective because features irrelevant to practical down-to-earth concerns are overlooked. Thus a metaphysical system begins not with a set of 'clear and distinct' ideas, but rather with a vague, artistic sort of grasp wherein 'imaginative rationalisation' fills in the gaps of direct observation, even entertaining inconsistencies in the hope of happening upon inspiring new theories. It is only afterwards, in the testing of these speculative hypotheses, that applicable and adequate metaphysical formulations are targeted.

Having adequately represented the reasonable humility accompanying process speculative endeavours, we can sketch the manner in which the key metaphysical ingredients work together in the system as follows. An experiential event arises out of its actual world of past events by a process whereby the objectivity of that past influence is gradually transformed into the present event's subjectivity. This process involves the integration of three separate components: the past objective influence, the present subjective creativity, and the relevant potential values. The first conformal prehensive step in this process of becoming is characterised by receptivity, re-enactment, and reiteration of what is mainly felt objective influence. The second conceptual step is characterised by appreciation, evaluation, and enjoyment as the felt influence is integrated with the potential values that arise in response to it. Responsive emotional tone and purposive factors transform the objective influence into a subjectively appropriated form, creatively adjusting it to the event's particular order of interests by intensifying and inhibiting aspects of that influence. Depending on the complexity involved, the experiential event displays varying degrees of novelty in response, ranging from the mere ratification of past experience in

a new subjective re-enactment of objectivity to a reactive refusal of the objective influence resulting in greater novelty in the creative synthesis with potential values. In the final comparative step, when the present experience has exhausted the possibilities of comparing, ordering, integrating, synthesising, the becoming reaches its being, settling into the satisfaction of a fully determinate drop of novel experience, the completed becoming now only existing as provocative influential being to be prehended in further becoming experience. Thus, as laid out in the scheme of categories in *Process and Reality*, 'the many' of past influences momentarily becomes 'a one' in the present experience, is then 'increased by one' in creative synthesis, to return as 'one of many' influences provoking the creative activity of further experience. With this rough and ready guide to the central tenets of process philosophy at hand, we turn presently to examine the nature of creativity, organicity, and temporality more closely. Our focus will be in terms of the psychical realist component in the development of these key process concepts, as demonstrated through the interplay of the transitional and integrative aspects of experience.

PART THREE
Process Creativity

One significant way in which the work of recent philosophers in the process tradition stands apart from previous traditions and individuals is in the metaphysical importance it places on the idea of creativity. Specifically, the recognition of creativity as a principle so fundamental that it applies to all existence is a notion particular to process thinkers in the present century. Already apparent is the fact that the pervasiveness of process that Whitehead stressed entails a world intelligible solely in terms of a multitude of processes, so that 'each ultimate individual fact must be describable as process' due to process being fundamental to actuality. Process thinkers hold creativity to be the first feature of these fundamental processes. Hartshorne's most ambitious volume, *Creative Synthesis and Philosophic Method*, opens with "A Philosophy of Shared *Creative* Experience" pointing out that although philosophers have spoken of divine creation of the world and of artistic creation within the world, to date creativity as such has not held a position similar to that of substance or matter or being in philosophy. Whitehead knew that 'in all philosophic theory there is an ultimate' but not until the advent of process thought has creativity taken this position of a first principle. The process perspective does not posit any basic existent entities devoid of creativity underlying the creative advance of a world

pervaded by process; that advance is supported instead by the workings of a multitude of creative existents.

§ The Fact of Creative Advance

Regarding the concept of creativity and its psychical realist component in process philosophy, the initial task is to establish the fact of creativity. In order to be creative, processes or events or entities - existents of whatever sort - must be unpredictable to some degree, which is to say that the activity involved must not be *fully* determined by the combination of causal conditions that impinge upon it and the laws of nature that apply to it. Hence a creative act on the process view adds novelty to the stock of already definite reality in existence, adds a novel element not entirely anticipated. As Hartshorne puts forth this unique process view, 'to be is to create' because every existent creates at least itself and, as existing, cannot fail to do so. Existence is synonymous with self-realisation and to be self-realising is conceived as a purely creative activity.

The candid psychical realist quality of the process persuasion is clear in the manner of substantiating the claim that all processes are creative. For one must initially look to experience. The process of experience is made up of any number of influences ranging from a multitude of causal connections in the form of perceptual input ('immediate impersonal memory') from a variety of conscious and unconscious sensory mechanisms, as well as from a vast array of recent to distant 'personal memory' input from relevant previous experience. All these factors flow together to form one single experiential unity in a present moment, becoming one sensory, emotional, intellectual whole. Clearly the fact that there are a number of causes for every experience already displays the presence of creativity, because an experience is 'a one' and not 'a many' and therefore cannot simply be a chronicle of the causes alone. The manner of their integration is also involved, endowing those causes with all sorts of perspectival, gestalt, and valuational accents. In addition, as Hartshorne's opening essay makes clear, even direct links between these further integration traits and the initial causes would not cover the unity of a present experience. For the values each component obtains in the relational structure of that novel 'togetherness' would be absent, even if the integration itself were dictated exhaustively by the nature of the causes, which seems quite implausible. Causes are always *pluralistic manys* while experiences are always *monistic ones*, and arising in the route from the many

previous causes to the one new experience of the causes is a free creative shift of self-realisation.

In an experiential process all four requisite conditions for the presence of a degree of creative freedom are at hand: an element of liberty among external constraints, an ability to engage in self-initiated behaviour, an element of alternatives from which to choose, and an ability to choose from among those alternatives. To deny the fact of creativity in the case of experience would require limiting experience to behavioural response alone, and then arguing that behaviour is in principle absolutely predictable. But as we have seen in the previous chapter, science no longer holds such a claim even for inorganic systems. Once an experience has taken place, as Hartshorne has it, 'not all the words in all the languages' could describe it precisely, and surely what cannot be said even afterwards cannot be said in advance. The final, specific, and unique character of a novel experiential entity undergoing its self-creative activity is that which distinguishes it from all similar ones, and it cannot be completely captured by a set of universal concepts, no matter how elaborate they may be. By definition creative novelty cannot be completely characterised with concepts already commonly understood, for otherwise it would not be new. Only the known features that have already been encountered, or some combination of them, can be positively characterised. It is easy to overlook this pervasive creative quality of experience because creativity as such is typically construed solely in terms of the more innovative, artistic, inventive forms setting it off from normal experience. But clearly the complete absence of creativity would imply the complete absence of experience which in turn would imply on process psychical realist grounds the complete absence of reality.

One trouble with isolating creativity in process metaphysics arises from the differing viewpoints of investigation adopted for the task. This is by and large the very trouble alluded to in the treatment of subjectivity in light of objective conceptions of science in the second chapter. An attempt to focus on the force of influence that past events have on present ones from the partial perspective of an external frame of reference only reveals the completed results of the process, which amounts to an analysis of becoming in the past tense. These external, transitional, and temporally retrospective accounts only yield causal description of an apparently passive growing together of received influence. "Science can

find no aim in nature: science can find no creativity in nature; it finds mere rules of succession."[26] Whereas from the internal, integrative frame of reference of an experience itself, with its complete perspective of subjective immediacy and real subjective agency, the creativity involved in the active reception, integration, and responsiveness to received influence is obvious. The subjective outlook conveys how apparent and how profoundly important the creative agency is in *deciding* the future to some degree as a complement to an objective outlook *predicting* it.

As to the would-be closed objective system suggested in the physical sciences, the appeal of the extravagant hypothesis that even physical activity obviously initiated through *conscious* subjective agency, such as trajectories through space of pizza delivery orders, are as predictable as physical phenomena lacking initiating conscious agency, such as future lunar eclipses, holds less weight nowadays, even in terms of a crude materialism supposing inert subatomic entities alone to be of fundamental importance. For even these so-called hard sciences, as previously shown, are approached and advance by way of the conscious interests, values, measures, and decisions pertinent to the scientific community. Moreover, as to the persistent difficulty of how psychical agency produces physical effects without defying the laws understood to govern physical reality, current science is already reinterpreting the stature of such laws in ways more open to introducing creativity - if not an outright psychical realism - to physical theory. Note the remarkable departure from past scientific practices revealed in the current division of physical laws. There are the more strictly universal ones such as gravitation, conservation, electro-magnetic force on the one hand, where violation is hardly conceivable; but also the less strict statistical ones such as those obeyed by crowds of individual entities like gases and thermodynamic systems, and those governing quantum phenomena (oddly unintelligible from traditional guidelines of physical theory) on the other hand, where interference on the part of psychical input may very well take place. There are compelling reasons nonetheless, Einstein reminds us, that prevent any rash extrapolation from the 'sheer black magic' of quantum and systemic indeterminacies to the outlawing of a robust determinacy, for these developments do not in themselves refute the view that 'God does not play dice' with the world. But a wide domain of phenomena may remain for which the future is for all practical purposes robustly predictable while the same is not assumed for other

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[26] A.N. Whitehead, *Modes of Thought.* NY: Free Press, 1968, p.211.

physical domains. At any rate, there seems no reason, dictated by contemporary science, to doubt the psychical intuition conveyed in experience that, far from merely registering predetermined sequences of thoughts and decisions, experience is pervaded by genuine self-created purposes and volitions, that in short, creativity is a fact of existence.

§ The Ultimate of Ultimates

Despite its pervasive existence as the unique, autonomous, self-realising of all actuality, and despite that its conception was partly derived from physics, biology, and evolutionary principles, creativity in process philosophy cannot be understood as a scientific concept, but must be recognised as a supremely metaphysical principle. And even as a metaphysical principle creativity cannot be understood as synonymous with either ancient or medieval renditions of the concept. Its nearest relation in antiquity, that of 'generation', is far from analogous, and it is hardly related at all to the 'creation' as conceived by medieval theologians. As an altogether novel idea process creativity is not an easy one to pin down. Whitehead offers no *clear-cut* definition despite any number of sweeping suggestive references. In the end he admits that, "These ultimate notions of 'production of novelty' and of 'concrete togetherness' are inexplicable either in terms of the higher universals or in terms of the components participating..." plainly aware that, "The analysis of the components abstracts from the [creative process]. The sole appeal is to intuition."[27] The appeal to intuition intimates an appeal to the actual influences and their varying felt significances in experience. Here the psychical realist strand in process philosophy is accented again in the insight that process creativity is in the becoming of experience. As made abundantly clear, the idea of process forms the basic intuition which Whitehead uses to elucidate his system, and he intends to appeal to that intuition - drawn from human psychical experience - to convey the inherent creativity in all worldly process. It is evident that from the sole *experiential* reality of transitional and experiential synthesis, the plurality, the unity, and the ongoing character of the world in its entirety are to be given a comprehensive account. And creativity is the principle that ultimately explains the existence of the world as dynamic and unified.

Notwithstanding its inexplicable nature, a good many things can be said by way of honing in on creativity, at least as an ultimate metaphysical principle.

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[27] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, pp.21-22.

Note first that it is the concept that accounts for the perpetual creative advance into novelty, 'the principle of novelty' at the pinnacle of process thought. A singularly key concept which together with the one and the many forms the zenith of the metaphysical system. We must see it as the complete generality pervading every type of existence whatsoever, the feature all actual events have in common. But creativity is not a higher level entity, but rather a higher level activity which is instantiated in the more limited self-realising activities of individual events. The events come and go but creativity as the underlying activity of the world process never ceases, and in this sense is an ultimate on a par with the Aristotelian ultimate of 'primary substance', a reference drawn by Whitehead himself.[28] Creativity may be analogous to Aristotle's prime matter, but a significant disanalogy arises in that prime matter is passive with respect to receiving the actuality of the forms whereas creativity is pure activity integral to actuality - the 'ultimate of ultimates' thus constituting a novel departure from all past first principles in a philosophical scheme.

The question of the ontological wherewithal of creativity as construed in process thought presents something of a problem. It is one of the few issues on which Whitehead and Hartshorne part company, with the former accentuating his Platonic leanings and the latter his nominalist ones. The better to explicate and universalise the doctrine, here we shall pursue a compromise position between the two. Creativity is certainly not an outright external agency putting forth its own obscure and autonomous purposes; it is not extrinsic but intrinsic to reality. Yet it may appear to transcend individual worldly events given that the world in its own right amounts to being a unified psychical-real totality of creative experience in process. It is not to be understood as a form of existence in any ordinary sense of the word, because to exist is to be self-realising and determinate and creativity is rather the ground of all self-realised determinacy. Nor is it to be understood as a form of possibility, because creativity also grounds all possibility. It is held to have no being whatsoever apart from the plurality of actualising events, but within the plurality it is held to exist as their most basic feature or essential character. Everything described in the process metaphysical system is one of the modal differentiations of creativity. It serves as an ultimate explanation backing the bounds of the ontological principle.

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[28] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, pp.21.

Creativity then should be seen as having more than a merely formal role as a category in process philosophy. It functions as a real general activity, meaning a pervasive and perpetual feature encompassing all reality, yet only in a dynamic manner with 'real' not existing without the 'realities' or outside these 'realities'. It also functions as an explanatory principle - 'the reason for the origin of that occasion of experience' - meaning the reason or ground for the source of an unending flow of actual experiential events. As a metaphysical principle, though it is not an event itself, it is an eternally real and inexhaustible metaphysical energy at the base of all existent events presupposed by their every becoming and revealed in their every being

§ The Process Metaphysical Rhythm

In order to comprehend creativity as ultimate explanation we must elucidate the manner of its metaphysical function. There is a telling passage in Whitehead outlining the rhythm of process in his system, through which that function is made plain.

> The world expands through recurrent unifications of itself, each, by the addition of itself, automatically recreating the multiplicity anew... The novel entity is at once the togetherness of the 'many' which it finds, and also it is one among the disjunctive 'many' which it leaves; it is a novel entity, disjunctively among the many entities which it synthesises. The many become one, and are increased by one.[29]

The idea is that creativity, as the pure activity underlying the ongoing nature of an expanding universe, functions as an urge toward differentiation and unification, that is toward the individuation of itself into the many experiential events, and toward the growing together of these events into new unities. Creativity is both *integral* to each novel event and *transitional* between each and the totality of them all. Note that the one and the many are more than mere mathematical notions based on number, but indicate the bare ideas of 'conjunctive singularity' and 'disjunctive diversity' in a metaphysical sense. Also note that it is a universe of a *one and a many*, and not a *one or a many*. There are always two syntheses to speak of in an ongoing world of process: the many into one and then the one into many. The many may be *composed of* a multiplicity of events but it is not *constituted by* them. Each event constitutes the world for itself as a unique manyness, for only within the coming together of each singular event does the manifold achieve conjunction. The one is necessary if there is to

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[29] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.21.

be a many, but the principle is such that though there are 'many actuals' there can never be an 'actual many'. This is the root of the dynamic rhythm of process pluralism. Both the microscopic integration and the macroscopic transition are complementary aspects of creativity as the ultimate principle of universal process. Events cannot be reduced to inferior modes of an ultimate creativity, for creative process and individual experience require each other. Creativity is needed to bring events into concrete existence, while events are needed to give form and definiteness to the shapeless flow of creative activity. The rhythmic interplay of the two are also required to give an account for the rational structure and the non-rational process found in experience.[30]

By viewing in (slightly artificial) isolation the two modes of creativity - that integral to each event and that transitional between them - the prominent role of psychical realism in both modes is made apparent. Creativity in its integral mode is illuminated by way of consulting experience to understand what it is and why it ought to be held as a fundamental property of reality. Whitehead appreciated that, "subjective experiencing is the primary metaphysical situation which is presented to metaphysics for analysis,"[31] and the key ingredient of subjective experiencing is its self-caused and creative reception, integration, and response. Whitehead refers to creative self-causation as an, "active power indeterminate as to its exercise, capable of choosing arbitrarily" from among the presented prehensive influences to be synthesised. From that analysis he goes on to surmise that, "the freedom inherent in the universe is constituted by this element of self-causation."[32] To see how this opinion fits into other ideas regarding creativity in its transitional mode, recognise that creative self-causation is perhaps the primary ontological concept, for it is this activity that connects process with an essential natural teleology based in creativity itself. The self-realising activity of fusing the multiplicity into a concrete unity of value - the eternal urge that 'all shall be one' - represents a creativity immanent to the participatory elements in an event that thereby renders it into an organic event, into an organism. This subjective deciding that takes place through the stages of an experience shows that experiences are not simply combinations of inherited final teleological direction and automatic mechanical integrative direction. The creativity itself within an experiential event applies exclusively to

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[30] See also remarks concerning the 'rhythm of process' in D. Sherburne's *A Whiteheadian Aesthetic*, New Haven: Yale Univ. Press, 1961, pp.240-247.
[31] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.160.
[32] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.88.

the radically novel decisions steeped in a rather free teleological self-determination in the subjective experience of the event's specific becoming. This more 'individualised' final causality in the decisions of each event complements the efficient causality inherent in transitional creativity. Thus causality is considered a complex process in which many influences are interwoven. Every new experience is in part the product of *efficient causality*, which refers to the influence of previous experience on it in the form of objective past data to which it must partly conform. There is also the element of *self-causality* or self-realisation, which refers to the manner of unification of that data from the unique perspective of the new experience. Every event contributes something of its own in the way it appropriates its past, relates to various potentialities, and produces a novel synthesis not strictly entailed by its past. And that creative selection occurs in terms of the alternative potentialities residually available for aims and goals which form an individualised *final causality*. The 'ultimate' in ultimate explanation refers then to how it is that creativity in experiential events exhibits all three sorts of causal influence, making it possible for events themselves to be cited as 'reasons' under the ontological principle in virtue of present responses (self-cause) to past experience (efficient cause) in terms of potentialities grasped (final cause).

As for creativity in the transitional mode, it too can be clarified in terms of psychical realism. The transitional side of creativity is nowhere explained in process philosophy other than in the twin claims that each subjective becoming is also an objective being for subsequent subjectivity and that this is apparent in the act of becoming. "It is inherent in the constitution of the immediate, present actuality that a future will supersede it." While the notion of unification commands enormous elucidation, the counterpart of differentiation seems to be something of a primitive, given little or no treatment, despite that the two sides together form the dual creative advance. But essentially the reason for so much description of the world unifying into a one and little of it diversifying into a many is that process philosophy is everywhere emblematic of what is encountered in experience. The calibre of experience encountered at the human level is such that in any present moment, there is a great amount of receptivity, re-enactment, reiteration of mainly past objective influence, alongside substantial appreciation, evaluation, enjoyment as that material is integrated into a present subjectivity. Aspects of future anticipation undoubtedly intervene in the process, but since the present *is actual* and the past *was actual*, they

command a greater experiential allegiance and are available for greater experiential scrutiny than vague anticipation of process *yet to be actual.* The psychical reality as lived through gives experiential synthesis in the present its temporal arrow toward the future, but an arrow at hand is easier to examine than the many future targets toward which it may point. The metaphysical analysis is understandably skewed to accessible experiential ingredients, that is, in elucidation efforts but not in ontological postulates. This need not call the reality of the transitional mode of creativity into question. What is more, should the system be envisioned as implying a world that stacks up into one psychical-realist whole, a scenario addressed in the following sections, presumably the nature of that cosmic experience, however unimaginable from a human perspective, would mean a far higher degree of anticipatory certainty endowing its present activity. Alas, the metaphysician makes do with a vanishingly small fraction of existent experiential revelation.

A second factor of transitional creativity, leading on from its scant treatment, concerns how its subtle monistic aspect relates to the more pluralistic integral creativity. Since, "the passage of nature is only another name for the creative force of existence,"[33] and since creativity is, "the one underlying activity of realisation individualising itself in an interlocked plurality of modes,"[34] the transitional mode suggests a more transcendent, monistic side to creativity. This unified and partly transcendent aspect removes any arbitrary disconnection between the one and the many, by virtue of being one universal activity giving rise to the plurality of creative episodic events. They are inextricably connected in that the monistic creative activity of cosmic advance requires pluralistic differentiation for its ongoing being. "Nature is never complete. It is always passing beyond itself. This is the creative advance of nature." Creativity is still a one in virtue of being this activity, but this by no means implies it being so in a substantial manner. It is located in the transcending of settled, determinate, actual events by new events aimed toward new anticipations. The plurality of these events 'conditions', 'qualifies', and 'characterises' transitional and in one sense transcendent creativity, while the reciprocal processes between the two modes affords the ultimate explanation for the ongoingness of the world. Ongoingness is explained through the extension of creativity as a continuous unity from the past to the present, through its leading into the future, through its

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[33] A.N. Whitehead, *The Concept of Nature.* Cambridge: Univ. Press, p.22.
[34] A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.70.

ever-active driving on of change, and through its inexhaustible and imperishable instantiation in the plurality of self-creative events. Without a transitional level transcending any ongoing manifestation in experiential events, experience would not include anticipation of either a general future nor the specific features of endurance present experience possesses in subsequent objective functioning. This is clearly so in present psychical life at the human level, wherein all activity presupposes never more than partly apparent outcomes. The assumption of psychical existence pervading the world generalises anticipation to show that everything to some degree points to a future. Hence, anticipation reveals the transitional mode of creativity eternally transcending its ongoing manifestations.

§ The Process Psychical Interpretative Spread

In outlining creativity in terms of its two modes, certain interpretations of key principles not altogether clearly stated in the canon of process writings have been allowed in the hope of achieving a more streamlined system. Clearly Whitehead acknowledged that creativity can and does take on a range of interpretations depending on viewpoint and purpose of analysis.

> If we stress the role of the environment, this process is causation. If we stress the role of my immediate pattern of active enjoyment, this process is self-creation. If we stress the role of the conceptual anticipation of the future whose existence is a necessity in the nature of the present, this process is the teleological aim at some ideal in the future.[35]

Consequently one expects and indeed finds a spread in interpretations of this central tenet among commentators on and innovators of process thought. They range for instance from creativity being conceived as utterly pluralistic (Christian, Leclerc) to conceptions of dual-nature creativity with monistic and pluralistic elements (Garland, Hartshorne, Van der Veken) to creativity being conceived as utterly monistic (Nobo, Wilcox). There is also a range that spans a high degree and influence of the presence of the past in present creative activity (Frankenberry), a high degree and influence of the presence of the future in present creative activity (Allan, Ford), and a high degree and influence of both the past and the future in present creative activity (Neville, Nobo). To delve into the specifics of their interpretative and innovative projects is beyond our present

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[35] A.N. Whitehead, *Modes of Thought.* NY: Free Press, 1968, p.228.

scope, but the main positions basically depict a recognisable pluralist-monist spectrum.[36]

William Christian and Ivor Leclerc, at one end of the spectrum, have argued for an utterly pluralistic creativity in Whitehead. Christian sees creativity as solely indicating the self-realisation or self-determination of internally free events. The self-caused creative subjective feeling at the heart of all existence points to the general fact that the world consists of self-creative experiential events. Leclerc sees 'creativity' as merely indicating the general activity *conceived in abstraction* from any individual instantiations of that activity. There are becoming events, and basic to them is the activity of self-creation. The fallacy of misplaced concreteness occurs when the abstraction is taken as actual itself or even more real that its embodiments, a fallacy resulting in a monism contrary to the pluralistic essence of process thought.

Yet in order for a completely pluralistic creativity to actively drive the world as opposed to merely underlying it, as passive matter presumably would do, there must be some means for it to give rise to new events, some manner by which it precedes those events. The problem with radically pluralistic positions according to Hartshorne, Garland, Van der Veken, among others is that creativity continually springs forth throughout the world as a primordial many without an existent reason or unifying source.

Charles Hartshorne makes do by accepting and elaborating the Whiteheadian role of God in the system, and that role is examined in the final chapter. William Garland identifies in Whitehead the suggestion that over and against all entities there stands a dynamic creative activity, one irreduced to any set of these entities. So Garland posits the presence of a creative 'receptacle' storing past and guiding present creative activity. Taking the receptacle notion further, Jan Van der Veken conceives creativity as *first and foremost* a properly substantial as well as a universal activity, something more than in a formal sense, a 'legitimate form of agency or active principle' with a general and all-encompassing function, for which experiential events are understood as its modes or instantiations.

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[36] For references and descriptions of key writings by these and other process philosophers, the best annotated bibliography to date is found in G. Lucas', *A Genesis of Modern Process Thought: An Historical Outline with Bibliography.* London: Scarecrow Press, 1983; see also L. Ford's, "A Sampling of Other Interpretations" in *Explorations in Whitehead's Philosophy* NY: Fordham University Press, 1983, and the reference section of the present study.

At the far end of the spectrum, Jorge Nobo believes that individual instances of creativity are manifestations of 'the one ultimate creativity of the universe', a position also shared by Wilcox. Nobo, the more monistic of the two, argues for a mutual or reciprocal immanence that implies each experiential event's presence in every other experience. Every experiential event, in a complete description, includes not only its own subjectivity but also its subsequent influence on other subjective experience. This one creativity at the base of all existence is 'eternally real' as 'an inexhaustible metaphysical energy', and without this eternal creativity no experiential events could ever hope to become. Nobo's 'solidarity thesis' entails that creativity and the extensive continuum and the receptacle all designate an ultimate reality which is extensive as well as creative, that constitutes an eternal matrix as the ultimate metaphysical ground for becoming and being and the solidarity understood to connect all experience. Although it is not straightforwardly the case that those of more monistic persuasion also highlight their adherence to the doctrine of psychical realism, it appears that psychical realism does offer a form of unity-in-activity to complete the system.

§ Creativity and its Complements

This final section on creativity concerns the place creativity occupies in connection with process potentiality and with a process God. The first point to make is that creativity requires potentiality as its complement. Since creativity is a ceaseless self-realising activity (on both pluralistic and monistic interpretations), it requires a degree of *unactualised* potential to maintain a genuine degree of novelty. If potentiality existed in an already fixed order, then the sum of experiential events would include all potential in either one of two ways. If it were eternally and exhaustively actualised, then both the absence of any unactualised potential or any actuality coming into being would follow, such as in the necessary existence scenario of a Spinoza. If it included some events actually coming into being, but only in as much as they followed an eternally fixed order of potential that determined the manner of each becoming, then at most a spurious contingency would follow, such as in the sufficient reason scenario of a Leibniz. Creativity cannot be maintained in either case, because the notion of novelty is lost in the former and the notion of free self-creation is lost in the latter.

It is also the case that potentiality requires creativity as its complement. In order for there to be a degree of potential, the actualised events must not

exhaust the potential order. But only an infinite multiplicity of them could ever do so. Any particular ordering of potential in experience and any combination of such orderings in experience by definition cannot exhaust *unordered* potentiality. But given the possibility of infinite events, events have to be aligned into a ceaseless flow of creative self-realisation, if potentiality is to be maintained. Some degree of creativity is needed, (spreading temporally here) otherwise the entire realm of potentiality would be exhausted and no unactualised potential would remain.

The ways in which creativity and God may complement each other introduces a range of possible interpretations to process philosophy. Indeed, the range is implicit in the growth of Whitehead's own thought. In *Science and the Modern World* and in *Religion in the Making* there are clearly the two distinct ultimates of God and creativity, but in *Process and Reality* an ambiguity is introduced, in which God may be seen as subordinate to an ultimate creative principle.[37] Here creativity is cast as a final metaphysical category or absolute, in the form of an activity rather than as an entity - and as an activity it may also serve as the underlying nature of God, the ground of divine being as well as the ground of finite being. If creativity is viewed not merely as a formal principle but as really active, then it is no longer necessary to interpret God as the highest existent, as an event over against all others. God on this view could simply be a dimension of creativity, namely its first limitation.

Now if creativity in the system is taken as universal and all-encompassing activity which must somehow be limited, it is not necessary to conceive of this initial limitation of creativity as a distinct entity, in the form of Whitehead's God. Rather the limitation itself could be conceived to be as ultimate as creativity, and no single entity conceived as having the same philosophically ultimate meaning. Additionally, the historical route of changes undergone in the first limitation with its interaction with worldly process could serve as the upholder of past worldly facts, a point we return to in discussing temporality below. Then the question of whether the first limitation of creativity is God amounts to asking the religious question, 'Does the drive and the support which are at work in the world reveal the characteristics that the religious person generally ascribes to

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[37] For an analysis of these developments see L. Ford, *The Emergence of Whitehead's Metaphysics: 1925-1929.* Albany, NY: Suny Press, 1984.

God?' Therefore it can be taken as a matter of temperament whether God and creativity are to be separated out into distinct ontological features of the system.

Varying opinions on the nature of teleological drive may make all the difference. Creativity ensures that reality necessarily involves qualitative flux, that it has an essentially dynamic character, that the future is open, and that the present alone is where the valuational possibilities inherent in that openness are actualised or forever lost. On its own creativity implies neither optimism nor pessimism about the long-range likelihood of value being diminished or enhanced as events succeed events over the course of time. But given that creativity is universally active and efficacious in all events, and that any value inherited from past events is retained in the primordial limitation of every process of becoming which co-ordinates those values from within, creativity in this valuational guise allows in a metaphysical interpretation consisting of just the three formative elements of experience, potentiality, and creativity. Provided one uncovers an optimistic trend in the accumulative momentum of altogether free teleological activity in creative worldly events, one could still adopt a God principle operative in creativity that answers to the religious temperament. The option is then open to having either an immanent creative urge or an immanent God *and* creativity in each event. In the first case psychical realism can hold a more prominent and less disputable place in the system, the fact (if it is one) of accumulative momentum at the cosmic level depicted as mirroring the enrichment of experience. Psychical realism is also employed in the second case, wherein God is then a religious name believers intuitively use for the all-encompassing process on the basis of evidence in particular experiences - thus showing God to be a category of meaning and not just a category of being.

Finally, since creativity and its first limitation, construed either way, are devoid of antecedent explanation or 'without why' according to Whitehead, the question arises as to how to distinguish it from the traditional and, in contemporary circles, the altogether, "easy assumption that there is an ultimate reality [the Absolute, Brahma, the Order of Heaven, God] which, in some unexplained way, is to be appealed to for the removal of perplexity," and as such is simply another case of, "...the great refusal of rationality to assert its rights."[38] Again, due to its psychical realist core, process philosophy responds by not

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[38] A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.115.

confining creativity to a theoretical concept, but by linking it to immediate experience, hence giving it a preconceptual intuitive meaning. Whitehead consistently reproaches theoretical science for studying only 'half the evidence provided by human experience', and especially in considering ultimate issues such as creativity the answers he insists are to be had 'by fusing life with nature' whereby theoretical constructs are identified with 'the emotional intensity entertained in life'.[39] Creativity is as explanatory and removes as much perplexity as immediate experience does, no more and no less.

PART FOUR
Process Organicity

Process philosophers recognise creativity as the ultimate feature of reality, the feature that drives experiential events onward toward greater and more integrated value, and this creative component indicates a prominent role played by psychical realism in the metaphysics of experience. Another significant feature of reality highlighted in the process metaphysical system is its organicity, which in part follows on from this creative feature. Organicity channels creativity, thereby serving the crucial role of fashioning organic order out of creative chaos. In fact Whitehead refers to his work as a 'philosophy of organism' throughout *Process and Reality* and borrowed insights from biology in formulating it and organic metaphors for explaining it. The initial sketch above made plain how process metaphysics centres on four ideas organically entwined: the prehensive activity of experiential *events*, the supervenient availability of further event *potentialities*, the underlying activity of *creativity*, and the lure toward higher integration of *value*. "What is indefinable in one such notion cannot be abstracted from its relevance to the other notions."[40] Whitehead also saw how order in the world was due to the nature of its ordered parts, each best understood as organic, unified, purposive wholes. Central to his philosophy then is organicity, worked out at four essential levels: how events could be organic experiential wholes, how events could interact organically with other events, how the world itself could amount to one organic experiential whole, and finally, how the basic ideas in the system could fit together organically. While all four levels point toward the prominence of its psychical realist feature and are best understood in terms of it, Whitehead tends to focus on the psychical side of the first two.

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[39] A.N. Whitehead, *Modes of Thought*. NY: Free Press, 1968, pp.231-232.
[40] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.5.

> In the philosophy of organism... the notion of 'organism' has two meanings... The microscopic meaning is concerned with the formal constitution of a process of realising an individual unity of experience. The macroscopic meaning is concerned with the givenness of the actual world, considered as the stubborn fact which at once limits and provides opportunity for the actual occasion.[41]

This passage conveys the distinction between these two main types of organic relations. In discussing the receptivity, integration, and synthesis of an experience above, in terms of integrative creativity and final causality, *organic relations within* an experience were drawn out. Our present concern is the manner in which 'the community of actual things is an organism' as shown through *organic relations between* experiences developed via transition.

Since Whitehead suggested that his philosophy of organism was a 'cell' theory of actuality, it is well to be clear on why and where the analogy holds. Certainly the manner in which prehensive influences make up an experience, as we have seen, is analogous to how parts of a cell are organised. The way parts of a cell are related to the whole cell however, and the way two cells are related to each other, are not entirely analogous to the way experiences are related to each other. This is because the relations governing cellular activity are not normally understood as having the assymmetrical temporal element that necessarily governs the relations between experiences. Likewise, and for the same reasons, the relations between two cells as functioning in one multicellular organism are not entirely analogous to the relations between two experiences. Experiences do not work as one for the functioning of a higher level experience of which they may be a part, as cells sometimes do for organisms. The analogy breaks down not only temporally, but also at the final cosmological level, in that unlike all other organisms the world itself conceived as one organic entity has neither an external environment in which to operate nor a single dominant pattern necessarily persisting through all the possible epochs it may undergo. Yet the interconnections that mark the temporal strands of experiential inheritance do qualify experiences as constituting a kind of organic order that is partly analogous to cellular activity. Strands of experience add up so to speak into various forms of unity (the 'concrete enduring entities' to be examined presently) and these strands suggest a world somewhat analogous to an organism, composed of several subordinate organisms. And ultimately, a psychical component is there at each level no matter how simple or how complex, to guide all experience via

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41 A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, pp.128-129.

that organic structure. Accepting the asymmetrical, the temporal, and the cosmological qualifications, the organicity of structured wholes of parts organised for particular ends still remains. Hence making it true that, "a complete organism in the organic theory is what corresponds to a bit of material on the materialistic theory," entailing psychical input in such fashion that, "...this doctrine involves the abandonment of the traditional scientific materialism, and the substitution of an alternative doctrine of organism."[42]

§ Societies and Selves and Simple Things

Now, in virtue of the relativity principle in process thought, all experience and all that is commonly encountered in experience and all the experiential world at large constitutes a variety of connected unities, revealed in analysis of the relations among their members. There is a 'general metaphysical obligation of mutual immanence' pervading all existent entities that connects and unifies them. These several unities are termed 'societies' by Whitehead, and the world is composed of, "a series of societies of increasing width of prevalence, the more special societies being included in the wider societies."[43] The word aptly depicts the fact that in societal unities the members themselves are the reason for the togetherness that obtains, a society being 'its own reason' due to some common defining character the members all share, despite whatever differences. Analysing the various types of society shows how organic relations introduce enough order into the world of experience to allow for its many enduring entities.

The all-inclusive outermost society is one of mere unqualified extension. It functions as 'the first determination of order' - the limitation arising out of the general character of the world that each generation of experiential events, whatever its more particular features of order happen to be, at least exhibits the general properties of 'extensive connection' and of 'whole and part'. It 'underlies the whole world, past, present, and future' being more basic than 'spatialisation and temporalisation'. It amounts to, "that general scheme of relationships providing the capacity that many objects can be welded into the real unity of one experience."[44] All past circumstances somewhat restrict present potentiality, and any given state of the world imposes restrictions on any experience arising out of

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[42] A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.99.
[43] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.92.
[44] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.62.

that world. To guarantee a togetherness of experiential events available for co-ordination by further experiential events, this general extensive uniformity is required. "This ultimate, vast society constitutes the whole environment within which our epoch is set, so far as systematic characteristics are discernible by us in our present stage of development."[45] The theoretical pure dimensionality and the four-dimensionality of the presently discernible space-time continuum presuppose this society of mere unqualified extension. The space-time continuum embeds a society of operative geometrical axioms which in turn embeds a society of operative natural laws and so on down to the most particular societal arrangements. But the most general *discernible* society is what connects all experiential events in their basic space-time relatedness. All experience that is happening and all that has happened and all that will happen takes place as novel drops of actualised space-time within a four-dimensional continuum.

Organicity, however, is displayed more readily in the 'bewildering complexity' of competing and accommodating societies embedded in the unqualified extension. "The most general examples of such societies are the regular trains of waves, individual electrons, protons, individual molecules, societies of molecules such as inorganic bodies, living cells, and societies of cells such as vegetable and animal bodies."[46] The universe is co-ordinated into a vast array of these 'societies of societies, and into societies of societies of societies' as Whitehead emphasises. Additional examples are offered to sketch societal orders in a descending direction,

> An army is a society of regiments, and regiments are societies of men, and men are societies of cells, and of blood, and of bones, together with the dominant society of personal human experience, and cells are societies of smaller physical entities such as protons, and so on, and so on.[47]

The analysis of experiential events has focused on individually receptive and self-creative activity in the abstract, outlining the general character and relations events possess. We have now to address the world of enduring yet changing, concrete objects known through human experience. Their ultimate foundations are disclosed in both spatially and temporally extended societies established via the amount of order relative to disorder achieved in the relevant givenness from past experience. Any present set of experiential events exhibits the dominant orders relative to them, after the fashion of moral orders pertaining to given

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[45] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.97.
[46] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.98.
[47] A.N. Whitehead, *Adventures of Ideas.* Cambridge: Univ. Press, 1933, p.264.

cultures. These societal orders are a special case of the organic interfusion that marks all experience. Here experiential entities reinforce the mutually connected togetherness of members of societies which share common characteristics in their manner of mediating and canalising prehensive influence.

Similarly canalised prehensions mean that every society requires a 'social background' of which it is itself a constituent part. Reality thus presents itself as a complex layering of societal environments, a 'hierarchy of societies' that provides more and more complex orders via mediation patterns of influence for included members. The layers must not be seen as similar to boxes within boxes however. Unlike this spatial model, the embedded layers are not merely externally related to their environments, but societal layers pervade each other in such a way that an experience prehends influence from the members of all embedding and embedded societies. Members of any included society are members of the wider societal layers as well, and far from repudiating the order of the wider layers, they depend on these more general characters as the base for their greater specialisation. Consider a cell in a kidney for instance. It has specialised features pertaining to its inclusion in the bodily organ that are not shared by other cells in the body. Yet in addition to being a kidney cell it is also a bodily cell sharing certain general features with all other bodily cells. The more general features support the more specialised ones, making the cell's social environment both the kidney *and* the body.

Yet unlike the normal perception of cells, the description thus far of societal order as the inheritance and display and propagation of a defining characteristic in a connected unity of experiences is strictly applicable only to intermittent flashes of existence, manifesting no temporal continuity of inheritance relations. To add temporal endurance to the account requires a further specification of 'society' that transforms merely social order into personal order. Here members of a societal unity are arranged in an asymmetric series of linear transitional propagations of the defining characteristic. Each experiential event arises out of and sums up its own history in a particularly intimate manner, and is provoked by both that history and the present social order support to reiterate its past character in the present. What appears as an enduring entity through time is not an experiential event but the defining characteristic reiterated in a strand or thread of events that enables each to sum up its 'personal' past in an intimate way. "The real actual things that endure are all societies," in some cases

involving, "a mere thread of temporal transition from occasion to occasion," while in others an organically ordered multitude of them.[48]

At one end of the spectrum then are enduring objects that consist of a single strand of experiential events aligned serially, each succeeding the previous and then succeeded by the next over time. Any one of these events individually displays the defining characteristic inherited in transition directly from the contiguous event before it and indirectly from all other events before it (less remotely from those within the strand, more remotely from those outside it) and transmits the character to subsequent events both within and outside that strand. The life history of all animals are personally ordered societies, and thus are examples of enduring objects of this strictly temporal variety. Human selves live through experiences that are threaded serially through time, but although strictly they are personally ordered societies, they require the sustaining organic support of interactions with the several intertwined societies that make up the immediate bodily environment and the less immediate (though crucial) surrounding environment of other embedded societies. These latter societies represent enduring objects at the other end of the spectrum, those that consist of both temporally and spatially extended strands of experience, that is to say, all entities commonly understood as physical objects. For example bodies and plants and diamonds can all be broken down into their constituent minerals, molecules, atoms, particles; each available for analysis as differing strands of enduring objects, and each ordered organically through its spatial and temporal co-ordination as dictated by the asymmetrical temporal relations of the relevant prehensions.

Although there are the two forms of living and non-living enduring objects, the line that separates complex forms of non-living things and simple forms of living things is difficult to fix. "Living bodies can be pursued down to the edge of lifelessness. Also the functionings of inorganic matter remain intact amid the functionings of living matter."[49] The two most obvious distinctions are the generally higher amount of novelty and vulnerability introduced in living societies as compared to generally repetitive but durable non-living societies. Some degree of teleological structure, in the sense of co-ordinated persistence of activity, is fundamental at every level of actuality. However selves have a

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[48] A.N. Whitehead, *Adventures of Ideas.* Cambridge: Univ. Press, 1933, pp.262, 259. This section is the clearest statement of these organic relations.
[49] A.N. Whitehead, *Adventures of Ideas.* Cambridge: Univ. Press, 1933, p.266.

comparably higher degree of freedom than simple things, though selves do not last as long as stones. Two further points follow which help to convey the essence of the organicity that arises as a result of societal order. Since alongside however much conformation to past objective fact, "the essence of life is the teleological introduction of novelty," Whitehead reasons that, "it is evident that according to this definition no single occasion can be called living."[50] Life is identified rather as the co-ordination of the self-creative spontaneities across societal stretches. Therefore on this view the ambiguity about the boundaries of living organisms is to be expected. And living bodies are not to be equated with personally ordered societies either. "There is no necessary connection between 'life' and 'personality'. A 'personal' society need not be 'living', in the general sense of the term; and a 'living' society need not be 'personal'."[51] But neither of these points indicate that there is no effect from the organic relations of the parts in societal wholes, as Whitehead explains in the following passage.

> The concrete enduring entities are organisms, so that the plan of the whole influences the very characters of the subordinate organisms which enter into it. In the case of an animal, the mental states enter into the plan of the total organism and thus modify the plans of the successive subordinate organisms until the ultimate smallest organisms, such as electrons, are reached.[52]

The temporal indicators 'successive' and 'until' allude to the asymmetric causal links that necessarily qualify how any 'plan of the whole' conveys influence to its ordered parts. It may be less intense and less innovative, but lower level experience is just as individual as higher level experience, and to have an effect the organic configurations must work around a pervasive psychical independence. Although 'by reason of the plan of the body' an electron may differ in differing organic relations, "the electron blindly runs either within or without the body; but it runs within the body in accordance with its character within the body."[53] Influence is only possible along temporal threads, but the differing threads of historical routes of experiential events interact with one another. An earlier experience in one personally ordered strand primarily effects that strand but also secondarily effects others. Strictly speaking, the intensity of experience that obtains at higher levels in favourable circumstances - living, conscious, ecstatic, and so on - is due entirely to conducive organic structures of historical threads of experiential events. The order of societal routes supervenes

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50 A.N. Whitehead, *Adventures of Ideas.* Cambridge: Univ. Press, 1933, p.266.
51 A.N. Whitehead, *Adventures of Ideas.* Cambridge: Univ. Press, 1933, p.264.
52 A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.98.
53 A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.99.

on the interplay of 'stubborn fact and creative advance' with organicity resulting in this, "substantial activity expressing itself in individual embodiments and evolving in achievements of organism."[54]

To get an idea of how that 'activity' terminates ultimately in a world of societies, selves, and simple things, we need only to introspect. Indeed, in the end it is the one place the idea can be fully appreciated. "The only strictly personal society of which we have direct discriminative intuition is the society of our own personal experiences..." Whitehead reflects and, refining this basic insight of his process forebears, Leibniz and Bergson, he goes on to suggest that, "We also have a direct, though vaguer, intuition of our derivation of experience from the antecedent functioning of our bodies, and a still vaguer intuition of our bodily derivation from external nature."[55] In order to see the general idea of process metaphysics as an organic system of things whose essence consists of its prehensions plus its 'real internal constitution' we must look to the psychical reality as lived through to get a glimpse of that essence. Integral to our personally ordered and society sustained experience are rhythmic reiterations of patterns, each consisting of some uniformity and some novelty. Organisms are revealed as structures continuing over time in rhythmic patterns most from the standpoint of teleologically endowed, high-level, one-many syntheses in this ongoing process. Insight into organic relatedness of the process sort, one supported by a creative psychical real component at every level, is quite easily confused with another related and popular set of ideas to which we now turn.

§ Organicity in Systems

The notion of organic holism has been the object of considerable attention in recent years, having undergone a conceptual change from basically descriptive functions in the life sciences to emblematic status in an ongoing paradigm shift away from mechanistic, materialist world pictures. Nowadays organic holistic thinking in its more romantic renditions often serves a somewhat notorious role as a panacea for any number of contemporary scientific and cultural problems. But surely many of these opinions and applications are oversimplified. Academically respectable work has been done in the area nonetheless, much of it taking place since Whitehead and Hartshorne first formulated their organic metaphysical doctrines. Perhaps the most fruitful developments are located in

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[54] A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.152.
[55] A.N. Whitehead, *Adventures of Ideas.* Cambridge: Univ. Press, 1933, p.265.

what is now commonly referred to as systems cybernetics. Comparing and contrasting these developments with process organicity will help explicate the latter and extrapolate the importance of its psychical realist component.

General systems theory amounts to a framework for understanding complex processes in any experiential domain. This framework arose as a consequence of recent discoveries in the field of dynamic interaction and wholeness in the life sciences, notably in the influential writings - both within and beyond their respective fields - of the biologist Ludwig von Bertalanffy and the anthropologist Gregory Bateson.[56] Parallel developments in the new technological sciences of cybernetics and information theory by Norbert Wiener, John von Newman, W. Ross Ashby, and Ervin Laszlo among others,[57] have contributed along with general systems theory to establishing an expansive, multi-disciplinary paradigm with fittingly eclectic methods of application. This amalgamation of views and general orientations on the nature of reality and their implementation in various intellectual and practical endeavours are commonly referred to as 'the systems approach' or simply as 'cybernetics'.

Like the process metaphysician, the cybernetist has much to say regarding the nature of process, and by and large shares a fundamental commitment to a philosophy that accentuates the changing flux of processes over the stability of things. Also, both orientations identify organic organisation in the world as of singular importance for metaphysical understanding, and use it in rejecting any bifurcation of reality along physical and psychical lines. The main bone of contention between the two views however arises in terms of the position taken on psychical realism. The organicity of the world for process thinkers is the outcome of the activity of experiential events that pervade reality, while for the systems approach there seems to be *nothing but* that organicity merely being suggestive of psychical traits at its more complex levels. Subjective becoming process is at the source of all existence for the former while objective being-in-process accounts for all existence for the latter. While cybernetics is a powerful heuristic device for explaining several salient features of reality,

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[56] L. Bertalanffy, *General System Theory.* NY: George Braziller, 1978, and G. Bateson, *Steps to an Ecology of Mind.* NY: Randon House, 1972, and *Mind and Nature.* NY: Fontana, 1980.

[57] For survey essays see, W.J. Ashby, *An Introduction to Cybernetics.* NY: John Wiley and Sons, 1961; and E. Lazslo, *The Systems View of the World.* NY: George Braziller, 1972.

arguably psychical realism must be introduced at some level to complete the metaphysical model.

The basic tenets of cybernetics relevant to the purpose of showing why this is so include the following. Communication for the cybernetist is the influence of information on the behaviour or structure of an organically ordered system receiving it, or on what amounts to being an experiential event in the process terms adopted here. The concept of information is not limited to the semantic form of communicated content commonly cast in verbal and symbolic discourse, but it is rather the broad notion of the effectiveness or influence of a communication process regardless of the content of the message material. Information under this interpretation is always related to a set of possibilities set out by the nature of the receiving system. Incoming message material does not enter as it is, but is coded by the system; the material that falls within its particular discrimination is thus transformed, while the portion which falls outside its discrimination is thereby eliminated. These receiving systems consist in parts of a whole which are held together by their organically complex interactions. The activity of any particular part is related to a set of possible states which it might assume, and parts are constrained however indirectly to the prevailing demands of the system as a whole. In such manner a hierarchy of meaningfulness is established within the bits of information regarding the nature of response, whereby the operations of threshold and constraint in the parts account for the pervasive order and consistency we find in the whole, resulting in the formal patterns, arrangements, and complexities that obtain. All systemic properties of a whole could be understood as restrictions upon possibility, as present digital codings or quantities of past analogic influences or qualities, that give rise to specific configurations of mutually constraining elements.

Most notable for present concerns, the cybernetist claims that the systemic arrangement of material parts into wholes can anchor the notion of psychical process. Since information is defined solely in terms of communicative influence regardless of the form or content of the message material, only difference as detected by the constraints of the relevant threshold becomes information, and difference cannot be localised in space or in time in the manner that message material can. Things that fail to happen are just as likely to make a difference and so become information as things that do happen. The influence of information may or may not be in the form of a quantity or in the form of energy; it may or may not have dimensions. Hence the perceiving of difference

can be regarded as the marking of events with meaning, the cybernetist argues, it can be viewed as a basic psychical operation. Psychical entities are then nothing more than special sorts of systemic wholes displaying operations of this type. They consist of any aggregate of parts that make up a whole, organised into circular chains of determination interacting by virtue of coded versions of preceding events (information), for which the parts respond by further coding. Descriptions of these responses disclose a hierarchy of logical types immanent in the phenomena. Of course the parts under consideration are physical not psychical entities, but it is their responsiveness to difference that the cybernetist uses to distinguish their functioning as psychical and to identify aggregates of parts organised into wholes of this sort as rudimentary psychical entities.

These criteria not only fit a number of complex entities that are commonly called organisms, but they also apply to parts of organisms that maintain a degree of autonomy in their self-regulation and functioning such as organs or individual living cells. They likewise apply to the much wider range of those complex systems consisting of multiple organisms (schools of fish) or systems in which some of the parts are living and some are not (city traffic) or even to systems in which there are no living parts (internal combustion engines). Anything that can receive information, and through the self-regulation made possible by circular trains of causation, maintain the truth of certain propositions about itself, is involved in psychical processing on cybernetic reckoning. The conceptual ground shared with process societies of experiential events is obvious, particularly in the transcending of ordinary conceptions of an organism.

Now in order to demonstrate the limitations involved in a metaphysical picture made up solely of systemically ordered activity, this primer of cybernetic organisation can be modelled on the systems that obtain in and around a kitchen refrigerator. Here the essential parts or systemic features include (in the very least) a thermostat, a switch, and a motor. The slow increase of temperature within the refrigerator represents the quantity of influence that provides the analogic territory from which the thermostat receives and discriminates information and responds by coding it. In turn this coded information provides the territory from which the switch receives information and then responds in kind with its coding. The motor then responds in similar fashion to the territory presented by the switch to provide new analogic territory in the form of decreasing temperature for mapping once again by the thermostat. By virtue of the differing constraints imposed by the parts of the systemic whole,

outlining minimal and maximal levels of information, the whole establishes a stable though dynamic state consisting of an internal equilibrium and an internal/external one, both held in systemic relations by circular causal links.

With little effort other systemic relations can be attached to this basic model to incorporate all the types of systems mentioned above. Live lobsters could be added to the contents of the fridge for instance, and the slow increase of temperature could be hastened with hungry people opening its door. Here we are incorporating living organisms into both the internal equilibrium of the refrigerator system and into the internal/external equilibrium of the refrigerator system and the house, the former raising the temperature slightly through the lobster's body heat within the refrigerator and the latter raising it swiftly through human appetite. Introducing organisms into the picture shows that the interplay of physical and psychical elements does not effect cybernetic principles in any exceptional way. Obviously other inorganic components could likewise be added to both systems: a burning candle added to the system inside the refrigerator perhaps or the house's heating system turned up outside of it. Indeed it is on peril of over-simplification that any organic or inorganic components whatsoever are left out of systemic description. As descriptive acumen increases, so too does the extent of cybernetic linkage. The model also shows the hierarchical structure of information in the varying thresholds of difference detection of the system's components. With increases in complexity, an order of conceptual levels or logical types of abstraction obtains between the systems and sub-systems. The differences that make a difference to the thermostat within the refrigerator may fail to make a difference to the thermostat of the heating system of the whole house, though the initial set of differences do play some part. The former thermostat is subordinate to the latter which maps a more inclusive territory as differences combine into systems of differences. The thermostat example also makes it clear that the hierarchical structure of the information is a function of logical typing and psychical process, not of the actual nature of the system components. Both thermostats code increments of temperature in the same manner - they may in fact be duplicate mechanisms reacting in identical ways to duplicate territory - but the psychical meaning of the difference is determined by its position in the system, by the process context.

Cybernetics obviously provides a valuable, expansive framework for understanding complex processes in any experiential domain. But upon examination it appears that the experiential component is not given a complete

account, but is merely pigeon-holed and left to one side in a rather pseudo-psychical scheme. Despite its heuristic potential, there are good reasons to reject the idea that the processes involved in any 'cybernetic realism' could ever capture the essence of processes in a 'psychical realism'. Is it plausible for instance that cybernetic understanding of psychical processes of rudimentary sentient entities would, through increasing the layers of complexity in the manner as outlined, ever allow in a degree that addresses *what it is like to be* an experiential entity? If the question is cast in terms of levels of complexity then, to defend cybernetic realism, hierarchies of organisation do indeed allow in something like psychical process, at least in the form of granting contextual meaning to particular events, and this sort of meaning no doubt could be arranged into patterns representing self-reflexive monitoring and arguably other complicated aspects of experience even as complex as those human consciousness displays. Computers now manage self-referential terms like 'here' and 'now', 'I' and 'mine' somewhat the way we do, while parallel distribution processing systems seem to suggest a variety of purposeful manoeuvres involved in the process of establishing equilibrium. What is missing may not be easily identifiable in terms of considering the psychical component to be a higher order affair. At any rate, the debate would never be resolved in this way, for new technological developments would forever present themselves for further consideration.

On the other hand, we know that there is an answer to the question, what is it like to be an experiential event, largely if not solely due to our own experience, and the debate is best cast in terms of that psychical component. Whatever cybernetic nets we may be under, persons are well-unified and purposive wholes. We get hungry and so we eat, we feel tired and so we rest. There is no getting around the fact that at the level of human consciousness a sense of purpose is apparent in the bulk of activity undertaken and events experienced. All wholes are not purposive to be sure, but all well-unified wholes such as human beings are purposive. And as the case for psychical realism confirmed, all wholes whatsoever both involve and are involved in purposive wholes. If a whole has less unity than its more unified parts, then it is not purposive, though its more unified parts are purposive, as are other more unified wholes of which the whole itself is a part. These last two remarks begin to sound as much like another construal of cybernetic linkage of the sort sketched in our refrigerator example as they do an account of how process societal relatedness, taking a bonafide

psychical component on board, might differ. Yet in not neglecting key details the distinction is made plain. And the distinction is perhaps what led Whitehead to adopt a change in terminology from an ontology of 'events' in his earlier natural science writings to one of 'occasions of experience' and 'actual entities' in his later metaphysical works.

The distinction is made plain in case of human beings. Persons making up a crowd, as previously pointed out, do not constitute a purposive whole. All we can show is that a person, like a molecule in a gas or an ant in a hill, acts differently according to its social environment or surrounding crowd. But the crowd does not act in a manner more unified than the actions of the persons involved. When a person is in deep sleep, however, what goes on in the body may indeed be little more than the mere crowd-like action of the person's (at that time) more unified cells. Likewise should one of those cells die, what happens in its remains will no longer be what it is doing, but what the molecules that constitute it are doing. A person's nervous system is a special group of cells whose function is to restore on a multicellular level the unity of action and reaction that a single cell already possesses on a more primitive level, and a molecule on a still more primitive one. Unlike a tree or an eco-system in its entirety in which no such special system of cells reacts to the world with any comparable integrity. The key feature is that of freely and purposely acting as one, concerning which any being living through conscious experiential events is an expert indeed. Persons are not just complicated systems of low-grade parts but rather single high-grade systems with a unity of purpose, sentient entities that act on their parts and affect their actions on each other. And though we consist of parts like eyes and hands, these are but organised groups of perceiving cells, not purposive individuals in their own right. It is this fact that grounds our sense of there being something it is like to be us, and that the something is to be regarded as in some sense real.

Cybernetically organised systems fit this description to a degree that falls far short of the mark, no matter how complex the system under consideration. The refrigerator example does display how a systems approach delivers an overarching concept of wholes of wide explanatory potential, but finally fails within that archway to make the distinction of purpose outlined here. And the related notion of subjectivity in cybernetics is at best over-simplified and at worst all but ignored. The components may be organised, differences coded and passed on, circular causal chains realised leading to self-regulation, but the idea of the system as a whole having an experience still fails to make sense. These systems

are comprised of circular causal chains in which all the complex relations of parts-to-whole can be explained fully by an appeal to the transitional efficient causality between the individual parts alone. There are merely events organised thus and so that tally-up into *what appear to be* unified wholes, with no further purpose required. Indeed, the very idea of a further purpose somehow beyond those obtaining via the events of the causal chains involved runs contrary to cybernetic explanation. The fact that the captive lobster and hungry homeowners behave (somewhat) according to systems principles in no way entails an absolute reduction of their independently purposive natures to a cybernetically predictable outcome. Furthermore, the cybernetist may claim that through the hierarchical structuring of systems, events come to represent several subordinate events. But from the viewpoint of human experience, psychical events are not simply events that just happen to be enjoying a bit of status as it were for being organised into the right place at the right time. Integrative psychical experience is not an event on a par with subordinate cybernetically connected and transitional, efficiently caused events at all.

An objection may be raised that explanations in terms of purpose, teleological explanations, have been discredited in recent science and philosophy. But all such explanation could not possibly be discredited, for knowledge and life themselves rely on purposeful activity in countless ways. Only some forms of teleology have actually been so discredited. There hasn't been much in the notion of a single absolute world-plan, complete in every detail from all eternity, and executed with omnipotence and omniscience since Hume's *Dialogues* showed how such a planner would thereby be made the irresponsible author of evil and, what is worse, thereby be made redundant. But there is still room in process philosophy to argue for other sorts of teleological explanation registered in organically ordered experiential events. The Aristotelian sense of a 'fixed end' final causality is replaced in process thought by an 'end in view' final causality - a teleology immanent in the experiential event which organises the data presented to it by the other experiences making up the rest of its world, in the accomplishing of its own organic process of self-realisation. The systems approach, though outlining one level of organicity prevalent in the world, in the end fails to develop a picture of reality that captures what it is like to be us, and others we can imagine that are like us. Experiential beings have ends in view, and a psychical realism must be brought in to complete that picture.

PART FIVE
Process Temporality

By examining temporality we complete a triad, with creativity and organicity, of the most salient features of process philosophy, and once again we find the psychical realist component accentuated. Whitehead beckons philosophers to 'take time seriously' and Hartshorne laments a characteristic 'love of symmetry' that keeps them from doing so. The result commonly points philosophy in either of two misconceived directions: toward various experientially supported but outmoded classical attempts to substantiate time, or toward various experientially unsupported yet rational eternalist attempts to deny time. Process philosophy on the other hand retains both the experiential evidence and the rational coherence by taking temporal asymmetry for what it is, namely by considering the world in essence to be coming into being and perishing out of it, after the fashion of our every experience.

The theory can be summarised in few words, but fully understood only in reference to its modal logical underpinnings and the relativity of space and time. Temporality is recognised as being incremental, asymmetrical, and objectively modal. The past as consisting of actual fixed facts, the future of potentiality for further facts, the present of occasions of experiential change that convert potential to actual. These alone are the essentials of the process account and, small wonder for the psychical realist, they constitute the essential pre-philosophical account of time as given in experience. That is to say the concept is derived in the end from a psychical realist vision of a multiplicity of the sort of integral and transitional experiences that we live through. Time from this perspective is therefore held not to be illusory nor to be a shifting of awareness across present occasions eternally there. It is rather the outcome of the sum total first of processes of experience achieving their novel particular additions to actuality by integration of prehensions and potentialities, and then of processes of experience contributing prehensive influence in transition enroute to their subsequent loss of actuality.

§ Relativising Absolutes

The point of departure for gaining a full grasp of process temporality is to see that experience is more fundamental than time, that in a sense to be explained presently, experience is in fact prior to time.

> In the act of experience we perceive a whole formed of related differentiated parts. The relations between these parts possess certain

> characteristics, and time and space are the expressions of some of the characteristics of these relations.[58]

So the concepts of space and time and space-time are derived without the introduction of other factors beyond those present in experience and utilised in framing all other concepts of the physical world. This outlook differs markedly from commonplace viewpoints on temporality.[59] Kant held that we encounter the *a priori* necessity of space and time as conditions for the possibility of experience. It had been customary, in Kant's day, to consider time as an ordered set of empty temporal containers ready and waiting for events to occur in them, just as it had been customary to consider space as an ordered set of empty spatial containers ready and waiting for things to occupy them.

> The Newtonian cosmology emphasised the 'receptacle' theory... Thus bits of space and time were conceived as being as actual as anything else, and as being 'occupied' by other actualities which were the bits of matter. This is the Newtonian 'absolute' theory of space-time.[60]

This model presented time under the same abstraction as space. The containers into which temporal events were inserted formed an unbroken, undifferentiated continuum of separate, externally connected events, enabling them to be placed in an absolute system of 'before and after' or 'contemporaneous' relations. Similarly, spatial objects were conceived as forming another unbroken continuum of enduring existence. But the emergence of relativity physics and quantum mechanics called these conceptions into question. However well these notions of time, temporal sequence, space, and spatial relations functioned in the pragmatic world of everyday experience, they failed to give an adequate framework in which to interpret events observed on the more remote microscopic and macroscopic levels of reality. Here, it became apparent that both space and time must be considered as relative to the systems in which the measurements are being made. And these scientific insights of space-time are intimately connected to the process notion of experiential events.

The concern with the relativity of space and time comes in initially as a corrective for the common analysis of the fact that the world as we observe it involves both temporal process and spatial extension. To take the widely held

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[58] A.N. Whitehead, *The Aims of Education.* London: Benn Limited, 1959, p.234.

[59] For a comprehensive survey on how views on space and time have evolved consult M. Capek, "Temporal Order and Spatial Order: Their Differences and Relations" in *Mind and Nature.* Wash. DC: Univ. Press of America, 1977, pp.51-59.

[60] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.70.

view of identifying process with serial time absolutely and extension with space absolutely is to neglect the fact that there is spatial extension to time itself. It is consistent with both process thought and relativity theory to conceive of any ultimate concrete fact as in a sense an extended process. When either process or extension are left out of description, a level of abstraction is introduced; and such abstractions are made variously and to varying effect. Depending on the circumstances, we affix different meanings to the notion of space and different meanings to the correlative notion of time. In respect to abstracting solely in spatial dimensions the paradox is easily overlooked, but it does appear paradoxical to contend that the serial processes we apprehend as time locally may differ profoundly from the serial processes an observer moving at the speed of light apprehends as time. Yet relativity theory has it that in affixing the varying meanings one can introduce mathematical formulae expressing spatio-temporal measurements which at one sweep explain a whole multitude of perplexing scientific observations. Thus relativity provides a more comprehensive account of the cosmos by showing how space by itself and time by itself are only shadows cast by a more substantial and fundamental space-time.

From the period of the earlier works in natural science through to the later metaphysical writings, Whitehead was aware that the uniformity of space-time is an abstraction from the more concrete constituents of the world we experience. He knew all too well that absolute space and absolute time were stumbling blocks in philosophy, instances of the fallacy of misplaced concreteness. Instead he set out to show how the concept of physical time could be derived from the concepts of integrative and transitional experience. Relativity thinking implies a relatedness pervading all things. Just as every physical object is subject to some minimal degree of gravitational sway from distant heavenly bodies, all experiential events are subject to some degree of relatedness to all other experience. It is all but unimaginable in terms of conventional thinking of space and time, "But if you think of it in terms of our naive experience, it is a mere transcript of the obvious facts."[61] The reason for this experiential focus could be attributed to another important thought developed over the course of Whitehead's work in natural science. It is the idea that the world consists partly of contingent facts and relations, and partly of 'systematic relatedness' and that

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[61] A.N. Whitehead, *Science and the Modern World.* Cambridge: Univ. Press, 1932, p.128.

any definiteness of character, "is gained through the relatedness and not the relatedness through the character."[62] Therefore the notion of the relativity of all things is applied to the very idea of being. The being of an entity is its potentiality for being an element in a becoming, that is, for being felt in experiential events. "There is nothing in the real world which is merely an inert fact. Every reality is there for feeling: it promotes feeling; and it is felt."[63] This insight applies even to the reality of spatio-temporal relations, and was incorporated into basic process metaphysical principles. We see it reaching fruition in the concept of the 'first order of determination' of mere unqualified extension and in all the subsequent organic societal orders that arise. The notion also leads in the full-fledged process relativity principle to understanding time as being in experience instead of experience as being in time. Again, space-time is not a fact prior to process but a feature of process, that of an abstract system of experiential perspectives derived by systematic abstraction from the succession of events. This is evident in the warping of space and time in keeping to a constant (the speed of light) that defines contemporaneity; they are not absolute but liable to distortions based on activity. "Nature presents itself to us as essentially a becoming." Whitehead observes, "...I do not mean a bare portion of space-time. Such a concept is a further abstraction. I mean a part of the becomingness of nature, coloured with all the hues of its content."[64] The final upshot of these reflections is not only that concrete experience is primordial while abstracted time is residual, and not only that relatedness is prior to the things related, but also that if something is not experiencing then it cannot be in time, a view reminiscent of the arguments from causality and from space and time for establishing psychical realism presented in the last chapter.

§ Epochal Drops of Becoming

Misapplying basic metaphysical principles regarding process temporality results in a good deal of confusion. Since time is an abstraction from events it is inappropriate to expect process philosophers to stipulate the time-span of an experiential event, even in the present cosmic epoch. The theory is rather a general way of thinking about the plurality of processes constituting the universe - it suggests basic universal concepts but does not automatically apply them to worldly particulars. Recognising the psychical realist component to

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62 A.N. Whitehead, *Principle of Relativity.* Cambridge: Univ. Press, 1922 p.19.
63 A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.472.
64 A.N. Whitehead, *Principle of Relativity.* Cambridge: Univ. Press, 1922 p.21.

process thought we have rightly kept the 'specious present' of human experience under focus as perhaps our best discernible sample. But Whitehead himself mused that even atomic activity may perhaps be composed of 'a whole shower' of such experiential events.[65]

Another related misunderstanding involves the fact that the manner of distinguishing individual prehensions within an experiential event is always somewhat arbitrary, because an analysis of them into phases is 'only intellectual' in Whitehead's understanding. Careful noting of the difference between the transitional process of being and the integral process of becoming helps introduce the epochal temporal theory. The philosopher's habit of accepting theoretical constructs regarding temporality at the outset (past-present-future, earlier-now-later, morning-noon-night, four-dimensional space-time, an eternal present) and working toward conceptual coherence is rejected in process philosophy. Instead the features of time commonly encountered in experience (coming into being, coming to an end, endurance, succession, simultaneity) are noted and the conceptual scheme drawn up to explain them. Becoming and ending are principally dealt with in terms of the concept of experience, and the others are derivative notions understood in terms of these. The problem arises when the scheme for transition is applied in equal measure to the scheme for integration.

In the process of experiential integration three successive phases (however arbitrarily stipulated) do take place: conformal prehensive feeling, conceptual prehensive feeling, and comparative prehensive feeling. Yet, there is no transition, that is none of the earlier prehensions are succeeded by later prehensions. No prehension comes to an end in the integrative process of becoming the way experiential events in the transitional process between them come to an end. As an integration develops, more and more complex prehensions supervene until a single complex prehensive unity is established, until the satisfaction of its subjective final-causal aim is achieved. The simpler prehensions are not superseded by these increasingly complex ones. They are carried along, combined, and co-ordinated throughout the one integrative process. The evolving of an experience, "from phase to phase is not in physical time..." Whitehead insists, "It can be put shortly by saying, that physical time expresses some

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[65] As recounted by Victor Lowe in, *Alfred North Whitehead: The Man and His Work*, Vol. II: 1910-1947. J.B. Schneewind ed. Baltimore: Johns Hopkins University Press, 1990, p.268.

features of the growth, but *not* the growth of the features." He continues, "Each phase in the genetic process presupposes the entire quantum, and so does each feeling in each phase. The subjective unity dominating the process forbids the division."[66] The process culminates in a structured quantum of space-time, but is not itself either temporal or spatial. Again, such dimensions are abstract schemes of mutual relatedness concerning the determinate completed events. Whitehead looks to William James for help in elucidating these quantums of integrative experience, "Your acquaintance with reality grows literally by buds or drops of perception. Intellectually and on reflection you can divide these into components, but as immediately given, they come totally or not at all."[67] The image of an 'epochal drop' is fitting in that we can note the growing build-up of dew for instance hanging from a branch, but cannot identify a falling dew drop until the process is complete. Just so, relative to a successor phase within a becoming, a predecessor phase is not past. It is a real constituent of the successor phase along with any other prehensions originating in reaction to it. As the phases of integration develop there are prehensions and then prehensions of those prehensions, the latter more complex ones ultimately eventuating in the single complex prehension of the satisfied being.

The resultant epochal integration, appearing all at once though endowed with a beginning and an end, thereby provides an answer to puzzles concerning temporal continuity that stem from as far back as Zeno. If temporal spans have no smallest units, it is impossible for them to be built up. This is because in as much as any given duration is divisible into similarly divisible durations within it *ad infinitum*, each one must be traversed sequentially, from the smallest to the largest. So unless there is a smallest indivisible episode, 'an epoch, an arrest', a temporal sequence can never actually begin. This also recalls another commonplace view of temporality, arrived at for reasons of tidy analysis consonant with Newton's system. Spatial things and temporal events - the 'bits of space and time' - have been viewed as composed ultimately of volumeless points and durationless instants. The epochal process view escapes another consequent difficulty regarding the ontological status of the present. The problem of then having all of time divided into the two groups of a past which 'is no more' and a future which 'is not yet' as first spelled out in Aristotle. But Whitehead clearly saw that, "It needs very little reflection to convince us that a point in time is no

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[66] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.283.
[67] W. James, *Some Problems of Philosophy*. NY: Longmans, Green, 1919, p.155.

direct deliverance of experience. We live in durations, and not in points."[68] Therefore the points and instants so theoretically useful in science are finally unsatisfactory. "But this way of conceiving the world of physical science, as composed of hypothetical objects, leaves it as a mere fairy tale. What is really actual are the immediate experiences."[69]

Essentially, the trouble in grasping the epochal theory goes back to our predisposition to conceive time as an absolute framework, as a uniform succession of durationless moments, prior to and independent of the actual occurrence of experience. So we tend to think that transitions between events and integral prehensions within them must be understood to occur in this same uniform flow of time. But if prehensions are conceived as leaving other prehensions behind within an experience, then the process of integration is much the same as the process of transition. This would break down the distinction between external transition between events and internal integration within them, and force any notion of epochal drops then out of the picture.

§ The Modal Temporal Flow

The process recognition of the 'temporal thickness' of present epochal drops also allows in the objective modality feature of temporality. We intuitively grasp the passage of time as continually undergoing an asymmetric forward movement. The past is determinate and thus unalterable, the present is in the making and thus being altered, and the future is indeterminate and thus a spectrum of alternatives. The modal division arises from the constrast between an unconditionally definite past and a conditioned indefinite future. The present is unique in being the most recent part of a class of accumulating past events internally related to it. As the present sheds its actuality in becoming past, its individual character is preserved with all others in the subsequent presents. These past events are neither spread out externally to each other nor nonexistent, but ordered with the more remote included within the more recent past, the present the most inclusive in the series. Time, then, has two very different sorts of being given its modal relations: as actuality in the present-past (its integration) and as potentiality in the future (its transition).

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[68] A.N. Whitehead, *The Aims of Education.* London: Benn Limited, 1959, p.237.
[69] A.N. Whitehead, *The Aims of Education.* London: Benn Limited, 1959, p.242.

We find a useful though not unproblematic analogy in the ripples spreading out in a still pond when a pebble is tossed into its centre.[70] Imagine each wave as an epochal temporal drop, and together with those it contains as an ordered spreading temporal duration. The waves are not isolated or externally related or 'simply located' as in classical depictions of time. The ripples rather increase in content as they extend, overlapping in such a way that later durations are inclusive of earlier ones. Each as a whole exhibits the pattern of ripples, as do its included parts, with the outermost ripple (the 'wave crest' of the present) creating novel actual movements out of still potential waters. And though each ripple is conceptually divisible into crests and troughs, it is not run through sequentially but forms a whole composed of its organic, internally related parts. Each wave represents 'an arrest' in the temporal process, a further display of the developing pattern, achieved only in the stretch from crest to crest, and retained even when superseded by subsequently encircling waves. Like experiences, the waves clearly divide into integrating individuals, but the transition between them is continuous and internal to the outermost wave, wherein discrete changes in the spreading wave pattern are given. The model does break down, however, at a certain point, for each wave is not created all at once in the manner of the creation of an experiential event.

Indications of the centrality of the objective modal nature of time come from the fact of relativity and from the nature of memory. The theory of relativity of space and time maintains that no region of space (or duration of time) has any meaning apart from its spatial relations of distance and direction to other regions (or apart from its relation of before and after to other durations). The space-time situating of our present experience invests it with a role in the evolving reverberations of reality. As active participants in integrative organic processes, as creative agents affecting the content of experience through volition, we shape the present and essentially contribute to the modal temporal flow of time in doing so. The present anticipates existences beyond itself in that its achievements, retained in further experience, will furnish value and offer direction for the future. Experience directs, emerges, and evolves from the synthesis of its various past parts. And it is through memory that we locate the course of our conditional decisions in that evolution. The modal asymmetry of time is evident in the traces given in memory of a definite past but nothing akin

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[70] The analogy originally suggested in E. Kraus, *The Metaphysics of Experience.* NY: Fordham Univ. Press, 1979, pp.24-25.

to those traces given of even an incipient future. Memory is simply not of a piece with expectation. And if the occasions of experience that compose our psychical states provide a modal sense of direction as a stream of events moving forward, then we ought to take these direct intuitions as paradigmatic of the psychical nature of reality.

Interpreting time in this manner, with our given intuitive grasp of it as experienced and with the coming into being and perishing out of being taken as serious verification of the way things really are, leaves little room for reasoning along (perhaps) more conceptually tidy symmetrical lines. Views that take past, present, and future to be on equal footing and temporal flow to be largely illusory are forced to trade phenomenological facts for some sort of abiding transcendental. But in such scenarios it is not only the facts of experience that are lost, the sense of the importance of the present, the modal fulcrum in the experiential flux, also loses its special significance. Instead of maintaining truths about the past, as process thought allows, symmetry entails that truths about both the past and the future must be maintained. Modal temporality shows how truth about the world is forever unfolding as potentiality is continually being fixed in actuality in present moments. The fact that past truth is unchanging need not imply that there is an unchanging truth about the future. What is surely rejected by the primacy of process is the notion that the future can exist as determinate moments beyond the present.

§ Status of the Past

We have seen how in a sense the future (however indeterminately) inhabits the present. We must now raise the issue of in what sense determinate moments that are beyond the present in the other direction, that is truths about the past, can do likewise. The first problem that arises is one of evidence. The tenets of process thought typically rely on empirical as well as rational backing, but on the face of it the idea that all past experience is retained in present experiencing seems quite extraordinary. Experience certainly does not convey an entire overwhelming history of past events somehow 'there' in each present one. But the peculiarity diminishes by noting that there is neither a problem of internal consistency nor experiential accord once the view is fully detailed. As for consistency, on process reckoning no experiential event can 'bear' its entire universe, if that is taken to mean carrying it explicitly or synthesising it without repressing and discarding ('negatively prehending') a good deal of that influence. Whitehead allowed that negative prehensions merely 'leave a mark' in

that which is being integrated. Therefore the entire past is not there in the sense of being simply available, only in the sense that a different past in any slight respect would have made the subsequent events slightly different. As for according with experience, although conscious memory may not convey the totality of the past, we do have access to much that can be conscious but which at any given present is being stored in other sentient events below conscious levels. Vivid dreams often recall distant memories far more distinctly than any conscious effort. Moreover, consciousness is only the tip of the experiential iceberg. Whitehead was inspired metaphysically by the fact that psychical realism implies our feeling continuous with the whole of reality, and that most of our activities which involve the confident going forth into the world testify to this felt continuity. Thus no single present event bears the whole burden of explaining how the past is held in existence. Events collectively, however, in a psychical real world are a good explanation of how this happens. The initial incredulity of having every single event totally responsible for upholding the world's past is qualified by noting the various social, community, solidarity orders that obtain organically which uphold the fullness of the past to varying degrees of conscious intent. Most of the events in nature are retained in fact by repetition in such a massive amount of reiteration that orders in nature do arise, which process metaphysics undertakes to explain. The actual incorporation of past events is not in the sense of everything from the past being inhaled by a ballooning present, but in the sense that present events increasingly spread out, tentacle-like, into the other temporal modes.

Another problem concerns the ontological status of the past as consisting of part of the present. Specifically, how we are to distinguish a repetition of past experience in present experience from simply another present experience? If there is no difference at all, it seems that we cannot. Any past material in present experience must be different in some way to represent it as past. Yet, if any change takes place in the conversion, in the going from its own subjective immediacy to objective fact in later subjectivity, then it seems that the past has not been preserved untainted, and that any claims about past events fail then to have anything substantiating them absolutely. Moreover the problem persists with the common process theological strategy of employing transcendental backing in answering it. For even if godly experiences, by being all-encompassing, do not lose any negatively prehended past material, it still seems that an infallible God needs something to be *infallible about* in those

experiences. Memory, be it mere mortal or immortal, cannot just be the past, but must be the past as it is in the present.[71]

One way around the problem is to recognise that in differing time modes events have differing external relations. Hartshorne highlights how the additional relations amass over time, and hence how it is possible to make the distinctions.

> The past must then still exist in the depths of the present; but this does not contradict the past's distinction from the present. For a constituent of a whole is not identical with the whole. 'When the past event was present' means... when the event was a whole which nothing possessed as a part; that the event is 'no longer present but past' means that now a new and more inclusive whole possesses it as part.[72]

If we do not rely entirely on the concept of representation or repetition, but rely instead on the idea of retention of the past in the present, we can reject the suggestion that in becoming part of the present the past must change. The past is represented or repeated to a degree of course, but retention also serves in conjunction with new synthesised relations to keep the past from merely being 'the same' and at the same time being distinguishable. Past subjective forms are added to the initial receptive, conformal phase in experience, but that does not mean that all the component comparisons and constrasts in the conformal feelings are in toto different. For if they were wholly different, then there would be no causal inheritance, and not only is the status of the past and future thereby jeopardised, but the present too begins to slip into an isolated solipsism of solely external relations. This is emphatically opposed to the relativity principle of a process plurality.

On the contrary, the 'same thing' is present wherever and to whatever extent its component contrasts are anticipated by or incorporated into other experiential events. This entails real penetration felt between the events rather than strange relations that merely 'gloss on' past entities and future occurrences. We ontologise time by turning pastness into an ontological mode, when all that is required is the accumulating of dynamic new relations. Things can be temporally passing without being labelled radically past in a sense which locates them existentially elsewhere than in any given present, and the same holds for the future, though admittedly there are other disanalogies in this latter case.

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71 T.L.S. Sprigge raises this difficulty in, "Hartshorne's Conception of the Past," *The Philosophy of Charles Hartshorne.* La Salle, IL: Open Court, 1991, pp.397-414.

72 C. Hartshorne, *The Divine Relativity.* New Haven: Yale Univ. Press, 1964, p.69.

In addition Whitehead draws attention to a phenomenological distinction that is manifest in the difference between 'first-handed' and 'second-handed' levels in experience, whereby objective influence is separated from that influence once infused with subjective immediacy. A storehouse of isolated objective facts, unrelated to present subjective experience, lacks 'immediacy' and so is merely 'repetition'.

> But 'process' is the rush of feelings whereby second-handedness attains subjective immediacy; in this way, subjective form overwhelms repetition, and transforms it into immediately felt satisfaction; objectivity is absorbed into subjectivity.[73]

By 'feeling' and 'satisfaction' are meant the phenomenological evidence of the appropriation of past moments of experience by the present. The distinction between repetition and this objectivity as absorbed in subjectivity is discerned phenomenologically in the distinction between something that is given over to us, 'second-hand' as it were, from the world and that which is immediate and formed first-handedly in the present. This is the very dichotomy, incidentally, that we are forever confronting as one aspect of the paradox of endurance as related to change.

Another tactic for solving the problems outlined regarding the status of the past is to challenge the notion of substantiating claims about past truths *absolutely*. On the face of it, truth as certainty seems the only acceptable concept of truth, and some sound verification story the required conditions for maintaining it. But in practice verificationist standards have proved to be ideals that are notoriously unattainable. From a process standpoint on the other hand the issue of what sort of truth we are looking for regarding the past genuinely arises. Truth as certainty is acknowledged as possible only by a past which amounts to being a sea of 'simply located' entities at best only masquerading as experiential events of the process variety. But if absolute certitude is jettisoned, the notion of modulated truthfulness of the sort Whitehead examines at the end of *Adventures of Ideas* comes to the fore. Of course the question of how much modulation is allowable is all important, but it perhaps presents fewer difficulties than the unavoidable metaphysical problems verificationist certainty introduces.

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[73] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.234-235.

Proust wrote volumes to set the past straight, but recognised in doing so that every time a memory was taken out he changed it by feeling it in a new place and time. He saw that we impregnate history with our present ideas and activities, while at the same time history impregnates us with whatever we retain from it. To be sure, cosmologists do not *remember* the big bang. They extrapolate it from events perceived in present observation, but nevertheless (increasingly?) accept it as true. And in principle all other truths concerning the past may finally come down to fitting together cracked fragments of influence bearing down however Proustian on the present. Whitehead concurs that upon completion an experience is thereafter available for 'pragmatic use' by subsequent experience. The 'immortality' attained by the past is in the conformation it inspires in later experience, capturing a 'remembrance of things past' albeit subject to ongoing revision.[74] Process philosophers contend that this level of 'true past' (as it actually impacts on the present) may be the best truth on offer.

There are surely good and bad renditions of the relativity thesis as so applied. At first glance a glaring inadequacy of relinquishing absolute truth about past facts for whatever trace scenario available in present evidence is easily identified. It does not square with experience, indeed it seems absurd, to contend that particular feelings felt yesterday, for example, will change given the mediation of modified contextual cues at a later point in time. But we might legitimately wonder if the past fact is truly beyond the affects of mediation *if absolutely all* context cues change through the course of further process. Feelings of yesterday are obviously 'experienced' via the complex series of relations obtaining through integrative present experience. What we might refer to as 'bad relativism' is the upshot that anything goes for such past facts, as opposed to facts being dynamically mediated relative to fixed patterns of process. Bad relativism is rejected not because past events necessarily support truth in some transcendental way (perhaps unknowable in principle), but because facts are remembered and mediated in the world so that they can observably and demonstrably support truth. Past facts may be logged solely in the flow of experience but not in an arbitrary and incomprehensible flow.

Process thinkers allow that the present traces, being all we ever have to go on, are sufficient for fixing enough relative past truth for practical affairs. So whether there are further past existences unconnected with present and

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[74] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.82.

potentially present traces thereby comes under question. A process event ontology keeps metaphysics from connecting to something absolutely beyond the activities and potential activities in the world, but it connects metaphysics to the task of formulating a comprehensive systematic interpretation of our activities and the world as we know it through that activity. Of course metaphysics is particularly engaging when it interprets what we do and what takes place in the world in ways which in part direct the change in everyday practices, instead of simply reducing everything to (current) practice. What makes that engaging is the realised value of what is produced beyond and perhaps despite what we do, but nonetheless this 'practical transcendence of practice' is grounded not in transcendentals but in actual activities. A transcendental storehouse of past facts is by definition excluded from making any difference, and doing away with it need not lead to bad relativism if mediating processes in the real world can be trusted somewhat. This is easy for the classical mechanical determinist, of course, since the total state of affairs at any one point in time plus allegedly unchanging laws of nature will contain all the information needed to derive the total state of affairs at any other point in time, thus doing away with the need for an extra storehouse, since then the world itself is one. But to follow the process line in giving metaphysical validity to our strong intuitive notions that creativity, organicity, and temporality are real and important aspects of a thoroughly becoming world, means that it cannot be quite that simple. But again, if we consider the truth of the past to be mediated by processes which are not completely determined, this doesn't require the assumption that the mediation is arbitrary: it follows patterns which may vary and evolve but which we may nonetheless learn to handle and understand to an increasing degree. True, that this implies that we live in a world digesting and interpreting its own past so that an 'absolute sameness' cannot be secured, simply because the questions about the past fail to mean the same as time passes. But we must not overlook the extent and the legitimacy 'modulated truthfulness' delivers. What for example happens to questions about location if the dimensionality of space changes? Patterns of very stable order give us practical sameness enough to give a well defined sense, at least within spans of thousands of years, to questions with even incredibly remote practical applications, whether or not we know how to look for the relevant traces. Bad relativism would only arise in practical affairs if we believed that our judgements of truth could be obscured by arbitrary mediations in an unavoidable way, regardless of the presence of transcendental support.

In sum, the process account of positive and negative prehensions, and of the connection between rationality and the creative, organic, temporal patterns of order, offers an attempt at overcoming this kind of bad relativism which is needed with or without assuming the existence of a transcendental storehouse of past facts. We can accept that claims about the past may change in certain respects, as facts are recombined into new patterns and perhaps wider deeper truths amplified by subsequent experiential processes. They cannot and do not change arbitrarily, given that there is reliable and understandable organic ordering imposed on the course of all mediation. The question in the end connects with another difficult one of whether truth is a passive, context-independent representation. Real creativity, organic relationality, and time taken seriously call into question the existence of truth thus conceived. Like the process thinkers Hegel, Peirce, and James before him, Whitehead in a sense looks forward to truth, for the good mediation of the truth of the past and the production of better and deeper truths are in many ways one and the same.

Finally, the theme in the foreground of our treatments of creativity, organicity, and temporality in process thought has been the spread from transitional to integrative phases in experience, and psychical realism has featured in the generalising of this dual aspect in experience to all existence. Creativity was analysed into its efficient transitional aspect and its final integrative one, organicity into lines of transitional inheritance and integrative subjective contributions to order, temporality into integrations of actual past events and transitional directives toward potential future ones. By way of drawing all three of these discussions to a common close and gesturing toward the essence of process metaphysics, we do well to qualify the extent to which these two aspects in the case of temporality are separate individual features. As the essential relativity of the nature of time has shown, any firm distinction separating the two ought to be eliminated. The status of the past in the present and the pointers into the future in the present form a more seamless whole perhaps than the conceptual analysis concerning the parts of the present suggests. There has generally been a process preoccupation with the final causality side of creative experience, with the self-realising side of organic ordering, and with the anticipatory side of the temporal present. But there is also a perfectly robust process doctrine representing the other half of all these pairs. The influences of accumulating pasts are clearly recognisable on process grounds (the causal past is really causal) once an inadvertent highlighting of final causality and subjective ordering as the be-all and end-all in present becomings is overcome. And yet this

does not point toward a strong distinction between the two forms of causality in order to preserve the neglected in light of the emphasised either. The idea is rather that since in general there is a conceptual inadequacy in the division, we ought not conflate or collapse the two aspects but preserve their distinct functions while supplementing their conceptual separation. Thus the reality of process is best envisioned in the end as a unification in a single form of intensive experience, pervasive throughout the various levels and types of existent entities, and undergoing the creative, organic, temporal activities infused by their respective dual aspects, in the present as elucidated here. And in a psychical realist world of intensive experience, as elucidated over the course of all our reflections, the process philosopher is well aware that, "The present contains all that there is. It is holy ground; for it is the past, and it is the future."[75]

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[75] A.N. Whitehead, *The Aims of Education.* London: Benn Limited, 1959, p.4.

Epilogue

Cosmological Pot-pourri

"The besetting sin of philosophers is that, being merely men,
they endeavour to survey the universe from the standpoint of gods."

In these final reflections our concern is the role psychical realism may play in the full metaphysical sweep of speculative endeavours aiming to complete a process cosmology. The hope of expounding any such ultimate ontological and cosmological scenario calls for unabashedly speculative applications of a process experiential vision, and a great degree of faith in the rational principles utilised thus far in its support. The case can hardly rest on 'shallow, puny, and imperfect' efforts at 'sounding the depths' from empirical evidence, derived in a mere moment of cosmic time from a small corner of the cosmos. "There is nothing here in the nature of proof," Whitehead insists, "There is merely the confrontation of the theoretic system with a certain rendering of the facts... and the system is confessedly inadequate."[1] It is not surprising therefore that in these matters process philosophers vary far more in their opinions. Nevertheless the all but universal acceptance of a psychical realist orientation among them affords the opportunity to at least clarify the more prominent of cosmic process options in terms of that orientation.

§ Possible Gods

The concept of God remains a primary principle implemented to complete the final process model. Yet from origins in Whitehead, that culminate in mere cryptic aphorisms at the end of working out otherwise elaborate metaphysical detail, and through to contemporary process theological projects, the process concept of God has typically been quite a departure from commonplace Judeo-Christian renditions.[2] In process philosophical work, thinkers rather tend to envision one or another of a host of gods-in-the-making, that answer to both the confines and capacities of a world utterly infused with experiential process.

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[1] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.343.
[2] Some Christian natural theologies have been developed along process philosophical lines, most notably by J. Cobb Jr. See his, *A Christian Natural Theology.* London: Lutterworth Press, 1966.

For example, Whitehead created God in experience's own image so to speak. "God is not to be treated as an exception," thought Whitehead, "to all metaphysical principles, invoked to save their collapse. He is their chief exemplification."[3] Since the world is composed solely of experiential events, God must also be one of these, only much more grand than those we live through and those we observe. God is one everlasting occasion of experience, in 'unison of becoming' with all worldly occasions. The synchronicity of God and the world implies a form of 'panentheism' meaning the world in God in Whitehead's philosophy, as distinct from the related 'pantheism' meaning the world and God as one. As mentioned earlier, this one great experience at the cosmic level has a dipolar nature: it first provides a lure of influence for all worldly experience for their unfolding becoming, and then takes in and integrates all influence from worldly experiences in an ultimate unity once the becoming of worldly experiences is completed. The necessary lure is the one infinite and eternal, complete and entirely conceptual experience of all potentiality primordial to the world (God's primordial or conceptual nature), while the contingent final unity is the many finite and everlasting, incomplete and physical experiences of all actuality derived from the world (God's consequent or physical nature).

But since any experiential event is still in the process of becoming determinate and therefore not yet a *something* at all, it is hard to see how Whitehead's God as one of these could provide a primordial lure of influence for other such events. Equally problematic is the influence in the other direction. If God is also forever becoming determinate there is as of yet no divine reality whatsoever, and so no divine integration of achieved value of past and present worldly experience. Whitehead's ontological and relativity principles dictate that no two experiences occurring at once, coming to be at the same time, divine or otherwise, can influence each other in any way. Whitehead reportedly recognised these difficulties, admitting candidly that, "This is a genuine problem. I have not attempted to solve it."[4]

Hartshorne envisions the God of process somewhat differently from Whitehead, partly in an attempt to solve this problem. His deity is a personally ordered society of divine occasions of experience, not just one great cosmic

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[3] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.343.
[4] A.H. Johnson, "Some Conversations with Whitehead Concerning God and Creativity" in *Explorations in Whitehead's Philosophy.* NY: Fordham Univ. Press, 1983, p.10.

everlasting one. The dipolar element is retained and is in fact amplified, with Hartshorne achieving the first full articulation of the philosophical implications and religious availability of God's primordial and consequent natures in his philosophical and theological writings.[5] As a temporal society of experiential events, Hartshorne conceives God by analogy with the human soul, and hence analogous to a living person, only in this case as a person whose body is the entire universe, both past and present. In such manner God can alternate between being the subject taking on influence from the world, and being the object that influences the world. So the unified experience of the entire universe at any moment is but one slice in the series of personally ordered experiences that make up the being of God. Interestingly, this view allows one to believe or to disbelieve in the manner that one accepts or rejects the reality of enduring entities of any sort. The relevant question is whether a present experiential event, embedded in the context of what for instance we commonly refer to as a person, has anything to do with any other prior events or with events to come, as outlined in terms of organicity in the last chapter. If so, then personalities are real and, extending the logic, God exists.

But we do well to ask whether Hartshorne's revision is satisfactory. Upon reflection there seem insuperable difficulties vexing the God-world synchronisation required by the position. As the creative advance of the world unfolds, the cosmic *temporal front* as it were, before which God must act as a subject being influenced and then as an object offering influence, must be as short as the shortest experiential event in existence at any one time. God must be capable of absorbing the creativity of all worldly events in order to be an all-knowing being; and God must be capable of offering influence to all worldly events in order to uphold the cosmic creative role of an omniscient, omnipotent, omnibenevolent being (strictly speaking rather an 'omni-becoming event' on process grounds). So presuming that worldly experiential events differ in duration - human conscious ones typically coming in split-second increments and surely not in phase with millions of subatomic events taking place each moment - the temporal span of each divine experiential event must be vanishingly thin. If not striking a cord of cosmic blasphemy, this view is at least

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[5] From among his many discussions, see especially, *The Divine Relativity: A Social Conception of God.* New Haven: Yale Univ. Press, 1964; *Man's Vision of God and the Logic of Theism.* Hamden, CN: Archon, 1964; *A Natural Theology for our Time.* La Salle, IL: Open Court, 1967.

odd in that it makes the experiences of mere mortals relatively more extensive than the experiences of God.

Perhaps the problem could be solved by having God turn up every once in a while, say once every human occasion of experience and so only once every million subatomic ones. Could God then adequately guide the world? On the face of it this may appear analogous to how the mind-body relation might work. If every second a person lives through but one conscious experiential event whereas the living cells in the brain undergo thousands of them, the more influential conscious experience may be enough to provide tolerable guidance to the body. This seems reasonable enough and answers to a certain intuition arising from the looseness of the mind-body relation as felt introspectively. But here again, this option would surely fail to portray God as the greatest conceivable being. In a world of events of varying magnitude, God would not only have to be far more temporally slender than most, but a God who allows thousands of cellular experiences and millions of subatomic ones to slip by without responding knows the world less perfectly and provides less intimate guidance than one conceived as doing so. Yet the strength of these objections hinges on how strictly one adheres to traditional theological conceptions, ideas that tend to receive radical re-interpretations if not outright dismissals by many process philosophers.[6]

However, even if a thin God occasionally on holiday is allowed, a far more insuperable difficulty arises nonetheless. Hartshorne, the world's pre-eminent process theist, seems unable to reconcile the God of process - either his own rendition or Whitehead's - with current cosmological understanding as conveyed through relativity physics. After several treatments of the difficulties involved in various publications, he has gone down on record identifying this issue as,

> a problem, even *the* problem, for me: how God as prehending, caring for, sensitive to, the creatures is to be conceived, given the current non-Newtonian idea of physical relativity, according to which there is apparently no unique cosmic present or unambiguous simultaneity.[7]

A crucial fact about relativity physics is that it assumes that no causal influence can be transmitted faster than the speed of light. This assumption creates a 'light cone' of potential influence which contains an indefinite number of

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[6] This brief depiction of the central temporal God problem is derived from discussions with L. Ford on the process internet forum (process-philosophy@Mailbase.ac.uk), and the attempted solutions from D.R. Griffin's paper, cited below.

[7] C. Hartshorne, *The Philosophy of Charles Hartshorne.* Chicago: Open Court, 1991, p.616.

events that are contemporaries with any given event. Thus any experiential events that take place on the sun for instance for about sixteen minutes are said to be contemporaneous with the present moment of experience taking place on earth. Putting it at its most quixotic, from the present perspective of a solar event, what happened here on earth sixteen minutes ago is contemporaneous with what is happening on earth now, as measured in terms of capacity to influence the solar event.

So the problem arises from the fact that process theism seems to presuppose a cosmic 'now' while relativity physics seems to entail that no such 'now' exists; that there is physically no unique meaning for simultaneity in the case of causally separate events on the one hand and that the process God requires the existence of a world-wide 'now' on the other. This problem, incidentally, is not merely an internal difficulty for the process theological system, but in fact exists for all forms of temporalistic theism. Moreover, if the direction of the solution should not point toward revising that notion of God, but rather adjusting relativity theory itself, it might have significance beyond that of understanding how temporal Gods of whatever bent might interact with the world. For these reasons, to 'relativise relativity' itself is a direction David Ray Griffin has recently suggested may finally be more fruitful than working further on process gods-in-the-making.[8]

But before turning from religious deities to scientific theories, a few other divine modifications that Griffin has investigated are worth mentioning. If God's divine individuality were to be given up, the absence of a cosmic 'now' would no longer present a problem. Since there is a localised 'now' associated with every experiential event, given the fact of its subjectivity and the relevant light cone of possible causal influence that physics suggests, perhaps God is then best conceived as simply dipping into reality to take on and offer influence wherever and whenever an experience reaches its completion. This idea has been introduced, after all, as part of the integral side of process creativity. As Hartshorne describes it, instead of speaking simply of God, one would then speak of God-Here-Now. But giving up God's divine individuality implies the drastic suggestion that God-*Here*-Now is not the same concrete unit of reality as God-*Somewhere-Else*-Now, thereby doing away with the simple analogy with human consciousness as a single linear succession of conscious states.

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[8] D.R. Griffin, "Hartshorne, God, and Relativity Physics" *Process Studies* 21,2 1992, pp.85-112.

The collapse of the analogy may not be all that radical however: surely deconstructive postmodernists have questioned identity notions that ground the personhood associated with human consciousness in single linear successions of conscious states. The identity of God could conceivably undergo a similar treatment. Such a development might even be seen as a bridge-building gesture between hopeful constructive and nihilistic deconstructive postmodern camps. A more diversified, perhaps even fragmentary, deity is somewhat appealing also in that the idea may with some imagination bring fresh process insights to an otherwise problematic *traditional take* on the nature of angels, a topic to which we shall return. Yet such a move would be unappealing at least for philosophers of Hartshorne's ilk. To begin with, the emphasis placed on the personality of God as a central feature of his theistic revisions would be lost. God would instead become the 'chief exemplification' of the multiple personality syndrome.[9] Moreover, coming from an adamant psychical realist persuasion, Hartshorne has insisted that experiential unity is the unity in which everything is initially found, and all other concrete unities, God included, must be understood as abstracted from or by analogy with this unity. Not only would the notion of God be rendered problematic, but each and every unity other than that known through present experience would likewise have to go.

Another alternative turns on what God - and only God - is conceived as knowing. One might suppose that even on the basis of an experiential event ontology, operating under relativistic constraints, all events are in fact unambiguously related either as precedent to, subsequent to, or contemporaneous with each other. A temporally well-ordered situation would then apply to space-like separated events, despite that no non-divine observer but only God would be able to know, even in principle, which set of events is which. To return to the sixteen minute stretch of causal ambiguity marking earthly and solar events: on this scenario the clear temporal spread on earth would be known by God to exist and to be geared in a definite temporal order with what takes place on the sun. But the problem with this proposal is that it supposes that the temporal relations of precedence and subsequence have meaning apart from causal influence, and that supposition runs counter to both Whitehead and Einstein's views. For them, to say that one event precedes another *means* that the earlier exerts causal influence on the latter.

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[9] There has been, incidentally, a curious increase in the number of those afflicted with multiple personality syndrome to parallel the advent of deconstructive postmodernism.

Finally, a related possibility is to suppose that the causal influence that establishes what set of events is unambiguously in the past is exerted solely on God, directed onto a divine occasion of experience alone; that some relations of precedence and subsequence that do not exist in space-like separated worldly experience would exist in an all-knowing divine experience. At first glance it might seem that because no unambiguous cosmic 'now' obtains within the set of worldly occasions that are contemporaneous with a divine one, this proposal would not really solve the original problem. But this is to neglect the fact that the only real 'now' that is needed is a divine one. The two-fold divine role required by God-world synchronicity can be fulfilled without establishing a 'now' that also discriminates every worldly experiential event from every other one. But Griffin rightly calls attention to the fact that an understanding of a series of cosmic 'nows' that does not depend upon a concept of God for its very meaning, if at all possible, will have a greater chance of being perceived as relevant to contemporary concerns by physicists and philosophers of science.[10] And even theologically it seems preferable to think of God as simply knowing the truth about the cosmic 'nows' rather than having them depend for their very existence upon divine experience of them. With these concerns in mind we proceed to the possible departures from standard scientific understanding proposed above.

Although Hartshorne hasn't taken up the idea, the relativising relativity solution can be introduced with an inquiry he himself initiated. "There is the haunting question," Hartshorne reflects, "can physics, judging reality from the standpoint of localised observers, give us the deep truth about time as it would appear to a non-localised observer?"[11] What is 'haunting' seems to be the suggestion that the deeper truth about time might be discernible only by God. For us then, the question is whether we, from our standpoint as localised observers, can see some way in which a non-localised omniscient observer, knowing the universe absolutely, would know it to have a universal 'now'. If so, we could challenge the assumption that time as defined by relativity physics should be accepted as the ultimate truth about time, even in the present cosmic epoch.

Relativity physics is concerned with influences as limited by maximum signal speed, that of light. But this aspect of physics can also be interpreted as simply not speaking to the issue of whether supraluminal influences occur. That is, such

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[10] D.R. Griffin, "Hartshorne, God, and Relativity Physics" *Process Studies* 21,2 1992, p.106.
[11] C. Hartshorne, *Creative Synthesis and Philosophic* Method IL: Open Court, 1970, pp.124-125.

supraluminal influence might not involve faster-than-light signals at all - the influence might be *different in kind* from that involved in signals. Whitehead at times refers to the world as a 'transmitting medium' and a kind of influence between remote occasions of experience that is not transmitted through contiguous ones.[12] In any given temporal span of experiences, Whitehead contends that a fourth experience feels the influence from previous first, second, and third experiences, all of which accordingly lie in the actual influential world of the fourth one. But the first and second may lie in the actual world of third experience as well, and the third is then influenced by them too. So the third experience brings an influence to the fourth experience of the first and second as felt through the third's mediation. Also, the second experience brings influence to the fourth of the first experience through the second's mediation. Hence the fourth experience has the first one presented to it as influence from three distinct sources: 1) directly via contiguous influence from the first experience itself, 2) indirectly via the mediation of the second experience, 3) and indirectly via the mediation of the third experience. Three sources of influence exist, the first directly, the first through the second, and the first through the third. Insofar as spatial as well as temporal distance is involved, there would be no reason to suppose that this direct influence at a distance (the 'first directly' in this example) would require the same time as that needed for influence transmitted through a sequence of contiguous occasions. There at least is no reason to disallow those direct influences being instantaneous. Whitehead offers the following qualification to the proposal.

> Provided that physical science maintains its denial of 'action at a distance,' the safer guess is that direct objectification is practically negligible except for contiguous occasions; but that this practical negligibility is a characteristic of the present cosmic epoch, without any metaphysical generality.[13]

This suggests that what is entailed by the idea is almost entirely metaphysical, having little if any significance for science. Because this type of influence would be 'practically negligible' - assuming that science continues to find no evidence for it - scientists can practically ignore it. Yet the idea might at least have one implication regarding the status of physical cosmology insofar as it embodies the theory of relativity: that is, the present cosmology with its understanding of time might not be assumed to be definitive for the ultimate nature of time.

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[12] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, pp.116-129, 284-291.
[13] A.N. Whitehead, *Process and Reality.* NY: Free Press, 1978, p.308.

To challenge physical theory in such manner may not be all that far-fetched. In the first place, current scientific understanding already includes theoretical and empirical projects that appear independently to point in the direction of supraluminal influences. J.S. Bell, Louis deBroglie, John von Neumann, and the early Werner Heisenberg all entertained the idea of underlying 'hidden variables' that suggested such influence as an explanation for otherwise paradoxical behaviour in quantum mechanics. More recently, other influential physicists such as David Bohm and Henry Stapp have put forth overarching theories to explain certain quantum peculiarities in terms of supraluminal influence, while experiments done by Stuart Freedman and John Clauser have provisionally confirmed the apparent violation of local causality in quantum phenomena that Bell's Theorem predicts.[14] It is true that Arthur Koestler and Rupert Sheldrake, among others, were greeted with hostility in espousing more speculatively flamboyant theories that entail simultaneous influence at a distance, but the aforementioned theories and studies, perhaps for being more keenly aware of the physical grounding involved, have been far more favourably received, or at least not held to be as outlandish as the latter.

Secondly, scientists are often compelled to take abstractions about some actuality that are focused on by some particular science, due to its limited interests and practical purposes, for a complete description of the total concrete actuality - what Whitehead calls the 'fallacy of misplaced concreteness'. Experienced time in this case provides a characteristic example. Given that science abstracts from the fact that individual experiential events take some account of the past and anticipate the future, it has difficulty affirming the reality of time in the physical world. Accordingly scientific accounts have generally regarded the 'arrow of time' to have emerged only at that point in the history of the universe in which aggregates of atoms subject to entropy appeared. Time as we understand it experientially, as an asymmetrical, irreversible process, is all but thought to be an illusion, or at best to have emerged only with the appearance of life. But process philosophers, by overcoming the fallacy of misplaced concreteness involved in materialistic conceptions of molecules, atoms, and subatomic particles, can affirm that asymmetrical, irreversible time exists all the way down so to speak, as laid out in the last chapter. What Griffin suggests is that with respect to the relativistic view of time a similar situation may exist.

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[14] For an overview of these developments in relation to process thought see, G. Lucas, *The Rehabilitation of Whitehead.* NY: Suny Press, 1989, pp.180-199.

That is, the relativistic view could be said to result from that form of the fallacy that involves equating, at least implicitly, the causal influence on an occasion of experience with that aspect of causal influence resulting solely from contiguous experience. Accepting that abstraction as the complete concrete reality would entail that no causal relation of any kind exceeds the speed of light, and that current physical theory states a metaphysical truth, or at least an ultimate cosmological one. On the alternative hypothesis, hinted at in Whitehead and pondered by Hartshorne as shown above, a post-relativistic universe in which all experiences are unambiguously either in the past of, in the future of, or contemporary with all others would obtain. While the physical causality operating at the speed of light or slower would still imply differing assessments of simultaneity by worldly observers, the instantaneous action at a distance of supraluminal influence would maintain one universal simultaneity, and so the needed cosmic 'now' of process and other temporalistic theisms would as it were have its time.

Finally, bearing in mind the psychical realist reliance on experiential cues to reveal metaphysical insights, it is relevant to mention that it is generally assumed in para-psychological circles that paranormal influence typically occurs instantaneously. "This conclusion has some empirical support," even Whitehead notes in passing, "both from the evidence for peculiar instances of telepathy, and from the instinctive apprehension of a tone of feeling in ordinary social discourse."[15] Whatever opinions one holds regarding the para-normal, the sense of feeling tone of a location, especially in hostile or otherwise unusual environments is a widely admitted phenomena, and the defiance of normal chains of causal influence has, since the time of James' *Principles of Psychology*, preoccupied researchers in the field.

§ Angels and Changing Absolutes

The proposal to relativise relativity theory itself highlights a useful distinction between cosmological and metaphysical speculations. While the present physical epoch has been shown to be dominated by the speed of light as one of the physical *cosmological* constants, in this case supposedly dictating absolute limitations on all causal influence, it need not (though it might) be a final *metaphysical* truth as well. Indeed the speed of light seems something of an *ad hoc* figure when considering the incredible dimensions now known to

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[15] A.N. Whitehead, *Process and Reality*. NY: Free Press, 1978, p.308.

characterise the universe at large. Just as reality need not be dominated by the four known fundamental forces of physical science - electromagnetic, weak and strong nuclear, gravitational - reality need not be constrained causally to the speed of light. These are discoveries of empirical investigation, not findings from a priori modes of inquiry; contingent facts and not necessary truths.

To be sure, the difficulty in keeping these distinctions straight increases when it comes to issues, such as in the above proposal, that involve time. For process philosophers tend to make use of what Peirce and then Hartshorne referred to as the 'objectivity modality of time' in discriminating cosmological contingencies from metaphysical necessities.[16] On a view as old as Aristotle, and one consistent with the creative, organic, temporal world of process metaphysics, contingency and necessity are *primarily* ontological features of time or process and only *derivatively* linguistic or logical features pertaining to thought. "That is necessarily which is always; that happens of necessity which never fails to happen;" according to Aristotle and, "that exists or happens contingently which exists or happens only at, during, or after, a particular or limited time."[17] Simply put, the eternal and the necessary are equivalent expressions, on a process interpretation of the passage, and contingency is manifest only in time and only as a character of some future. It is easy to see that if the eternal were what could not have failed to exist and what could not ever cease to exist, then the eternal means the necessary, defined modally as the 'not possibly not'. Hence, the three separate temporal modes relating to metaphysical truth are eternity consisting of abstract necessity and possibility, past consisting of settled concrete necessity, and future consisting of some combination of settled concrete necessity and abstract possibility conditioned by that necessity. Necessary truths can then be defined as that which has always been part of the settled future and thus has never been and will never be an open contingent possibility.

At any rate, on this view it is all the more tempting to see long-standing contingencies as eternal necessities, a classic example being that of Aristotle himself, who wrongly thought he saw in the regularity of the heavens empirical proof of metaphysical truth. The metaphysician seeks to formulate necessary

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[16] C.S. Peirce, *Collected Papers of C.S. Peirce*, C. Hartshorne and P. Weiss eds. Cambridge, Harvard Univ. Press, 1930-1958, Vol.6, p.32; C. Hartshorne, "The Neglect of Relative Predicates in Modern Philosophy," *American Philosophical Quarterly*, Vol.14, No.4, 1977, pp.309-318.

[17] Paraphrased by C. Hartshorne, *Creative Synthesis and Philosophic Method.* IL: Open Court, 1970, p.133.

truths regarding existence, truths that no conceivable state of affairs could invalidate. Examples Hartshorne identifies through process metaphysics include: necessarily something exists, necessarily experience occurs, necessarily creative synthesis involving internally and externally related actuality occurs and - one to sum up the others - necessarily divine infallible experience, having fallible experiences among its objects, also occurs.[18] These differ in kind from cosmological notions such as the speed of light constant and the four fundamental forces mentioned above, which could conceivably be otherwise. While the metaphysician's task may involve a good many cosmological considerations - Whitehead did subtitle *Process and Reality* 'an essay in cosmology' and sought therein to fuse the great cosmological schemes of Plato's *Timaeus* and Newton's *Scholium* - the aim of those considerations is primarily one of providing 'applicable and adequate' working out of details that address the 'coherent logical' metaphysical structures thus embodied. Often a confusing overlap is unavoidable, such as when cosmological theories imply an expanding universe alongside metaphysical truths that entail an increasingly complex integration of all existence. And often cosmological options are curiously neglected despite blending in both with current scientific understanding and metaphysical conviction.

Nevertheless there is a certain amount of cosmological elbow room within process metaphysical boundaries, to rival the metaphysical elbow room insisted upon in the proposal of relativising the cosmological theory of relativity above. One might criticise process philosophy for its apparent preoccupation, in a world spanning billions of light years across, with a select set of its relatively negligible entities. An adherence to present scientific data obliges 'empirical rationalist' process thinkers to maintain that the purposive unities in existence include subatomic particles, atoms, molecules, cells, animals, and (provisionally) the universe at large. The stark imbalance toward the small and the local - relative to the size of the universe - merely reflects constraints based on current scientific knowledge. But nothing cosmological or metaphysical in any way precludes the possibility of greater sentient centres of purposive activity. In fact, arguably *our present grasp of* the monumental size of the universe points toward a statistical plausibility of that being possible.

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[18] C. Hartshorne, *Creative Synthesis and Philosophic Method.* IL: Open Court, 1970, pp.13-15.

Perhaps star clusters, given a wide enough space-time scope of evidence, would display the unified purposive activity required to make good the analogy to sentient entities such as persons and other animals. Perhaps these sentient star clusters in turn would appear to be merely akin to atoms in greater sentient galaxies, and galaxies merely like molecules in greater sentient galaxy clusters, and these cosmic clusters merely cells in a final universe-wide sentience. Gustav Fechner and then Josiah Royce and F.C.S. Schiller expounded positions along these lines (planets being characteristic examples in each) but erred in reasoning that the specious present of such cosmic moments of experience, by fluctuating relative to the size of the entity and hence being 'very vastly slow' in heavenly bodies, would put all evidence of unified purposive response beyond our observational grasp. The error was not in postulating a lack of evidence in principle (in a metaphysical sense), which is clearly not so in this standard cosmological issue, but rather in suggesting that all entities of whatever shape or size were best understood as being sentient. This leads to the idle metaphysical claim that all entities behave in the manner of their 'natures' implying for instance that 'stones take account of other stones' precisely by following the laws of nature that bear upon their physical interactions. Besides being an empty doctrine that changes nothing beyond verbal designation of already identified physical processes, it closes off potential sources of evidence set in the distinct arrangements of pluralistic experiential events. Specifically, the hierarchical manner by which levels of sentience are embedded into one another, and the nature of the internal and external relations involved, could make all the difference in the nature of the entities and in the internal environments thereby established. What are cosmological absolutes as ordering principles at one level may change at higher experiential levels.

True, there is no evidence beyond vaguely suggestive statistics as to the reality of cosmic experience at the exalted rank of star and galaxy clusters. But suppose experiential events at a cosmic level far above human experience yet below the universe at large did exist and roughly followed the patterns we (partly) discern in mind-body interactions between human and cellular experience. We influence our cells to some degree and our cells influence us. And even without direction from over-riding subjectivity, cells as we have seen, along with all other existents, come under the influence of the systemic connections that enmesh them. There is however the notable difference between the two sorts of influence outlined previously. Cosmic subjective influence may very well be analogous to that subtle yet effectual difference that separates the subjective and the systemic

influences guiding human and cellular experience, a distinction known primarily, if not exclusively, in the case of our own experience from the inside.

The philosophical and religious availability of the idea may help to further the case for a streamlined process psychical perspective. First, the theological component is still there for the taking, as the possibility of an absolute sentient whole embodying the changing cosmological absolutes remains open. Here a process theology, conceived along the lines of a Hartshornian psychical deity operating under (as of yet) partly undisclosed metaphysical truths regarding time, would still serve in one universal God-world synchronicity. Second, here also a spectrum of deconstructed deity options - the angels if you will - pertaining to the cosmic ordering principles of individual cosmic epochs alluded to above, in what Hartshorne called the 'Gods-Here-Now' scenario, would likewise be a conceptual possibility. The notion may be filled out in terms of cosmic habit patterns such as the four fundamental forces and the speed of light constant operating in the present epoch, and any number of stories told as to how each grand cosmological state of affairs would (or would not) tally up these changing absolutes into one final divine process whole. Finally, the process agnostic or process atheist has here enough in the way of scientific understanding to leave the more speculative ventures to one side and still maintain a coherent process orientation focusing on the fact of creativity as set out in the last chapter. Psychical process would still provide a reasonably intelligible ordering principle solely based on bottom-up varieties of the theme.

§ Process and the Perpetual Rebirth of Wonder

The earliest recorded musings as to the nature of reality amount to a crude precursor of the psychical realist and process philosophical ideas explored in the present study. It is of interest to note, in closing, the treatment these ideas have undergone throughout the history of thought. Human beings adhered to a sense of a process psychical animism prior to and independent of any support of either logic or science. The process quality of psychical experience within was universally applied throughout nature, an application that in time ushered in a pantheon of gods corresponding to the recognised features of experience. Greek reasoning maintained an allegiance to psychical intuitions, but cultivated both materialist views separating it off to cosmic ideal levels, and dualist views that did little but mask an agnostic stance toward those intuitions. In either case an insentient and static dimension was added to the sentient dynamic sphere, from which arose the problematic relations between physical and psychical

existence. The temporality of process as known in experience was not captured adequately in ideal Platonic forms nor in Aristotelian prime matter.

Medieval thinkers emphasised the eternal divine reality at the expense of the temporal mortal one, thus furthering anti-process and anti-psychical rational tendencies. It was never consistently worked out how the two realms could interact, nor how matter, if not cast as psychically real, could be the outcome of a psychical divinity that lacked matter. The mechanism and materialism that later came to govern scientific practices were already present in these great divides established as separating a free divinity from a fated mortality and the creative psychical from the determined physical. Curiously, modern philosophy for a time all but universally retained its allegiance to the psychical attributes of deity while accepting that *science had proven* the natural world to operate under invariant, mechanical forces.

Still more curious, after a frank atheism gained a wider audience, were subsequently attempted exclusions of psychical reality even from our own experiential confines within that natural world, this notwithstanding the advent of various evolutionary explanations. But while the gods may succumb to positivist science projects, we ourselves could hardly hope to come entirely under the spell of scientific conceptual frameworks that deny the genuine reality of our own psychical experience, that is the genuine, dynamic, creative characteristics of the psychical that run contrary to static, mechanical details thought to govern dead inert physical matter.

Nowadays even the static mechanical details in natural processes operating at the elementary level have been all but given up, to be replaced by statistical counterparts accurate at best for current measurement purposes. From rational puzzles in antiquity down to philosophical psychology in current debate, the conceptual backdrop alluding to details of this sort has always represented the only direct counter to the view that the world is both psychically real and pervaded by process through and through. It has been argued that an assumed existence of static and mechanical, rigorous and utterly regular reality never was a good argument for an absolute absence of dynamic creative experience, first by reasoning on grounds that it could never conceivably be proven, and second on grounds that even assuming its truth would mean either the absurd absence of our own process psychical reality or its absurd exemption from the universally rigorous laws of determined mechanical detail. The bearing that recent

discoveries implying an uncertainty principle in scientific ultimates will finally have on ontological issues remains partly unresolved, but clearly the seeds for questioning anti-process and anti-psychical assumptions have been planted.

We are accustomed to seeing our scientists, as well as our philosophers and our artists, advance by bringing greater accuracy and lucid definition to unbridled exaggeration and lack of clarity. By and large our present understandings amount to refined and elaborated reworkings of originally inherited ideas, as novel insights are grafted onto the stockpile of already unfolding developments of first principles. Ultimate interpretations, to follow along these natural lines of advance, ought to be the outcome of the initially striking ideas intuited by our ancestors. The earliest known musings as to the way things are - that reality is made up entirely of experiencing entities of some sort and that there are gods of all sorts - may accordingly fail us in countless details and intermediary principles. But assuming our philosophical forebears were not utterly mad, I for one am willing to submit that the only really primordial notions regarding experience and reality are notions worth wondering about. ...And in the present reflections I have tried to go some way in that direction. But alas, there is always more wonder to be done. "Philosophy begins in wonder. And, at the end, when philosophic thought has done its best, the wonder remains." - Alfred North Whitehead.

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